



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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} PROPRIETORS.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, AUGUST 27, 1836.

OFFICE OF THE WETUMPKA AND COOSA R. R. Co. }
WETUMPKA, ALA., 29th July, 1836.

THE Directors of the above Company are desirous of securing the services of a competent resident Engineer, to survey and locate the route of the Wetumpka and Coosa Railroad, commencing at this place. The route of the road will pass through a country that is considered as healthy as any in this latitude. Persons desirous of embarking in such an undertaking will please address the undersigned at this place.

W. H. HOUGHTON,

Sec. W and C. R. R. Co.

The Evening Star and Courier and Enquirer, New-York; the Commercial Herald, Philadelphia; Baltimore Gazette; National Intelligencer, Washington; Richmond Enquirer and Whig, Richmond, Va.; and Charleston Mercury, will please give the above eight weekly insertions, and send a copy containing the advertisement, together with their bills, to the undersigned.

(34—51) W. H. HOUGHTON.

NOTICE TO CONTRACTORS.

SEALED Proposals will be received by the subscriber at the office in Elizabethtown until the evening of the 10th of September next, for grading and bridging 23 miles of the Elizabethtown and Somerville Railroad—the line will be staked out ready for examination on or about the 28th inst.

Plans and specifications will be exhibited at the office 10 days previous to the day of letting. In the above work there is about 300,000 cubic yards of earth to be removed, and six bridges, from 40 to 200 feet in length—the Piers and Abutments to be built of good Ruble Masonry, and the principle part of the wooden superstructure on the Lattice plan.

JAMES MOORE, Ch. Eng. of E. and S. R. R. Co.
Elizabethtown, Aug. 17, 1836.

ANOTHER NEW STEAMBOAT.

The "RHODE ISLAND" has been placed on the line between Providence and this city. We received an invitation to her first trip, but were prevented by business from going—much against our will, as from the character of the other boats of the line, we had formed high expectations of her performance.

We have since understood that she gives universal satisfaction. We rejoice at every new facility given to the travelling community, and at none more than the starting of a new steamboat—one of the noblest triumphs of art.

We wish success to the Rhode Island, and every other vessel of the line.

We have received a note from a "friend and subscriber," in regard to the insertion of articles on the subject of Geology and Natural Philosophy.

It has ever been our intention, to make the Journal of general interest, and to pay particular attention to all collateral branches of science.

Owing to the press of matter of that peculiar character, that spoils by keeping, we have of late given an unusual quantity of "Railroad" matter—and several articles of interest have been delayed. Original articles on this, and all other branches of science will be thankfully received.

A situation is wanted by a man who has served as overseer on a large estate in England. He is ready at accounts, writes a good and expeditious hand, and could act as superintendent on any public or private work, where any agent to look to the employer's interests would be necessary.

Any communications for him, left at this office, will be attended to.

From the New-York Times.

AVENUES.—WATER FRONTS.

Messrs. Editors—I have read with much interest your remarks on the opening the avenues in this city—also, the sensible article in your paper of the 6th, from the Johnstown Herald. This Editor truly says, "the business of the city of New-York is increasing beyond comparison in this country," and expresses his astonishment at the short sighted policy, which has prevented the opening and improving of the avenues from the compact part of the city to the north end of the Island, and then remarks, on the exertions and perseverance of a public spirited individual who has secured to our citizens, perhaps, the best McAdam road in the United States.

It is the thronged state of this road—the third avenue—and its inadequacy to accommodate even the pleasure wants of the public,—that I wish to draw your attention to—it is truly stated that we cannot take a ride on it, except at the peril of life, so great is the multitude who are daily tempted to the gratification of a ride on it. It is well recollected that when this road was first brought forward in our common councils—its projectors and friends were denounced by the lower wards—it was called in derision "the Alderman's race course." "That it was only to accommodate a few speculators." "There was no use for such an expenditure by the city," &c., &c. But true is the fact? Who use it the most? and for whose advantage is the opening of all the avenues? Certainly the citizens in general, and the lower wards in particular. The rich and middle classes enjoy their rides. The poor mechanic and laborer from the facilities of omnibuses and railroads would be able to purchase good building lots in the upper wards at very moderate prices, and remain on the island and not be subject to the in-

convenience of crossing the East and North River, to build up adjacent villages, to the injury of our city and the loss of much of their time.

We have an intelligent Board for our city councils, and I trust that the old jealousy of "up town and down town" will be done away with, and that no time will be lost to open the avenues to the fine and deep water fronts on the island. That the whole city and its future prospects and population will be considered by our city councils. The water fronts on the East and North River are nearly all occupied, and the magnificent project of Alderman Clark, claim attention. We certainly require all the water front we can make, without injury to our navigation.

Let it be considered for a moment that the Erie canal is to be enlarged to a Ship canal, so as to bring the trade of our State and the Western Lakes in barges to our wharves. Let me then ask, where can we accommodate them and the population that this interior trade will bring us. Without we open and McAdamize our avenues, we shall be behind the wants of the West, to accommodate their trade with water fronts—and this too without taking into view the increasing and domestic trade to the South, the East added to our foreign.

It is understood that there are now above 2500 boats on our canals, averaging about 30 tons each—this trade is still in its infancy. It is only ten years since we celebrated the completion of the Erie Canal, and we find that each year the trade has increased faster than the accommodations to carry it on.—The city of New-York dates her regular and steady increase in population and property to the commencement of the system of internal improvement. Let me then ask, does she improve herself and her national advantages in the ratio required by her yearly increasing trade and population? I fear not.

REPORT OF THE SOUTH CAROLINA COMMISSIONERS TO THE KNOXVILLE CONVENTION, ON THE SUBJECT OF THE PROPOSED RAILROAD FROM CHARLESTON TO CINCINNATI AND LOUISVILLE.

The Commissioners appointed by the Legislature of South Carolina, to make an examination and survey of the country between the Ohio river and the city of Charleston, "for the purpose of ascertaining the best practicable route for a Railroad"—have the honor to submit to the Convention now assembled at Knoxville, such information as they have been able to obtain. Aware that this convention would be composed of Delegates from all those portions of country most deeply interested in the proposed road, and that it would embrace such a combination of talent, character and information, as would enable its members to exert a powerful influence over the public mind, in reference to this great work, the undersigned have not hesitated to regulate their proceedings with a view to submit the results to this assembly. The Commissioners have, accordingly, repaired to Knoxville to

meet the Convention, and have also directed their several Brigades of Engineers to assemble here, for the purpose of concentrating all the information they may have procured, to be laid before you.

In giving a brief history of our proceedings, we feel that it is due to ourselves, as well as to the Engineers, who have been industriously employed in making the explorations and surveys—to state, that we have been greatly embarrassed in our operations, by the shortness of the time which has been allowed us, and the extraordinary inclemency of the weather. Finding it impossible, under these circumstances, to do more than to make an examination and survey of a portion of the designated route, we did not hesitate to direct our attention exclusively to that section of country which presented the greatest difficulties—embracing the Mountain region—extending from the foot of the Blue ridge east, to the western base of the Cumberland mountain—believing that if this portion of the route should be found to be practicable, the country below these lines—and extending on one side to the Atlantic, and on the other to the Ohio—might be safely assumed to be so.

It will doubtless be recollected by the Convention, that, at a public meeting held at Cincinnati, in August last, it was proposed to connect that city with Charleston by a Railroad, and an able Report was published, showing the practicability of the scheme, and the great advantages that would result from its accomplishment. A printed copy of these proceedings having been transmitted to Charleston, the liveliest interest was excited among her citizens, who had long looked to such a connexion with the West, as an event greatly to be desired. It was peculiarly acceptable to them, that the proposition should have come from the quarter whence it now emanated, and they felt it to be their duty to respond to the appeal thus made by Ohio, in a spirit which should leave no doubt of the disposition of South Carolina, to unite most cordially with their western brethren in bringing about so desirable a result. A public meeting of the citizens of Charleston was accordingly held, and resolutions were unanimously adopted, pledging their zealous co-operation in the great work. In fulfilment of this pledge the City Council immediately appropriated \$5000, out of the City Treasury, and put the same at the disposal of a committee, charged with "causing such explorations or surveys to be made, as may be deemed necessary, in order to determine the practicability, cost, and proper route of the proposed road." This committee, acting in conjunction with a similar committee appointed in Columbia, the capitol of the State—took the promptest measures to carry into effect the views of their fellow-citizens. It was accordingly determined, to apply to the Legislatures of the States through which a road from Charleston to Cincinnati must necessarily pass, for a CHARTER—and for such appropriations as might cover the expenses of the surveys. In the mean time, and in order to afford to the Legislatures of those States such information as might induce them to comply with these requests, a Board of Engineers was constituted—consisting of Cols. Gadsden and Brisbane and Mr. Holmes—gentlemen eminently qualified for the task—who were charged in behalf of the citizens of Charleston, with making an exploration of the several passes through the Blue ridge, and across the intermediate country to the foot of the Cumberland mountain, in Kentucky, in the general direction of the proposed road from Cincinnati to Charleston, so as to lay their report before

the Legislature of South Carolina, at their annual meeting in December. Agents were also appointed to attend the Legislatures of North Carolina, Tennessee and Kentucky, to make such explanations as might be required, and, if possible, to obtain charters from each of the said States, identical, in all their provisions.

In the prosecution of the duties thus imposed upon them, Col. Gadsden and his party entered promptly and zealously upon the explorations required, and embodied in a luminous report the result of their examinations, the substance of which was communicated in due season to the Legislatures of the several States interested therein.—From this report, which will be found to contain a mass of valuable information, such extracts are hereto annexed, as bear more immediately on the questions now before the Convention. Our Agents who attended the Legislatures of North Carolina, Tennessee and Kentucky, succeeded in obtaining charters from those States; but as the charters in the two latter States, vary in several particulars from those passed by North and South Carolina, it has been deemed advisable to cause the original charter, as passed by South Carolina, to be printed, with the several amendments made thereto by the other States, so that the Convention may be able to decide whether any alterations have been made therein, or any restrictions or limitations imposed, which may render further amendments necessary.

The Legislature of South Carolina, in addition to the charter above mentioned, also passed an act to cause surveys to be made for a Railroad between Cincinnati and Charleston, appropriated \$10,000 for that purpose, and appointed the undersigned Commissioners to carry the same into effect. This act contemplated the passage of similar acts by the Legislatures of North Carolina, Tennessee and Kentucky, and accordingly directed the South Carolina Commissioners to unite with those of the said States in causing the proper surveys to be made. In consequence, however, of the failure of those States to pass such acts, the undersigned have been compelled to assume the whole duty, which was intended to have been performed in conjunction with the Commissioners of the other States. If Commissioners had been appointed, and appropriations made by these States, surveys might have been commenced simultaneously in North Carolina, South Carolina, Tennessee and Kentucky, and the Convention might thus have been put in possession of an actual survey of the whole route.—Necessarily restricted in our operations, we have made, however, the utmost possible exertions to put the Convention in possession of such information as may enable them to act efficiently on this subject. On an application made to the Secretary of War, that officer was pleased to suffer Capt. W. G. Williams, of the Topographical Engineers, Lieuts. Drayton, White and Reed, of the army, and Mr. G. F. Featherstonehaugh, of the Civil Engineers, to enter into the service of the Commissioners for the purpose of making under their direction, the above mentioned surveys.—These gentlemen being organized into two Brigades, under the orders of Capt. Williams, have been engaged since the middle of April last, in surveying the passes leading from the head waters of the Broad and Saluda Rivers in South Carolina, across the Blue ridge, into the valley of the French Broad River, and from thence down that valley to a point from whence a suita-

ble route for a Railroad could be marked out, across the Cumberland Mountain into Kentucky.

The Commissioners felt themselves restrained by the shortness of the time, and the small amount of the appropriation, from extending their surveys further than to the several passes leading into the valley of the French Broad River, a restriction to which they were the more reconciled from the fact that any route to the North or South of that valley, would trespass upon the territory of Virginia or Georgia, from neither of which States have charters been obtained. It cannot be doubted that there is no route within the limits of the existing charter, by which a Rail Road can be carried across the Blue Ridge, that must not pass along the valley of the French Broad river; and the Commissioners are under a full conviction that this valley affords, *by far, the best channel of communication*, between the Ohio River and the Atlantic Ocean. This opinion is founded upon some personal observation, extensive enquiries, and explorations and surveys of the several routes which have been suggested. Public attention having been several times called to a route extending from the Linnville Mountain in North Carolina through Virginia, across the Moccasin Gap to the Ohio, by the valley of the Licking or Big Sandy Rivers in Kentucky.—Mr. Holmes was despatched in November last by the Charleston Committee to examine that route, and from the information obtained by him, as well as from an actual survey made by Col. Long, of the United States Topographical Engineers in 1831, the Engineers unanimously pronounced that route to be inadmissible. From a careful exploration made by Capt. Williams, of the whole mountain range within the limits of South Carolina, there does not appear in the opinion of that officer to be any practicable route for a Railroad south of the Saluda Mountain. A route, however, has been suggested, across the Rabun Gap in Georgia, which the Governor of that State has been directed by their Legislature to cause to be surveyed, and it is understood that the Engineer of the Athens Railroad Company has also been employed in examining a line from Athens across that Gap. For the reasons above mentioned, the Commissioners did not feel themselves called upon to survey any route not embraced within the lines covered by their charter, and even if not restrained by this consideration, had neither time nor means to extend their surveys beyond the limits of their own State, and a line drawn from thence across the Cumberland Mountain, by the valley of the French Broad, and looking to the connection of Cincinnati and Louisville with Charleston. In consequence, however, of the surveys directed by Georgia of the Gap, through Rabun, they deemed it advisable to obtain all the information on the subject in their power. With this view, Col. Brisbane and Richard W. Colcock, Esq. have been recently sent to make a survey of that part of Pickens' District, in South Carolina, adjoining Rabun county, in Georgia, with instructions to pass by the Rabun Gap, down the valley of the little Tennessee, to some point below the Smoky Mountains, and from thence to Knoxville, where it is expected that they will arrive in a few days.

The Report of Capt. Williams, of the surveys made by the two Brigades of Engineers under his orders, will be laid before the Convention, so soon as the same can be prepared, and will afford all the additional information on this subject, which

it will be in the power of the Commissioners to afford.

It will be for the Convention to determine, on full deliberation, after all the necessary information shall have been laid before them, whether a practicable route for a Railroad has been found from the Ohio River to the Atlantic Ocean, to connect Louisville and Cincinnati with Charleston? whether such a work can be constructed at a reasonable expense? whether the advantages to arise from it will justify the efforts necessary for its execution? and, finally, what are the proper means to be adopted for combining the resources of all the States interested therein, in one SIMULTANEOUS AND MIGHTY EFFORT for its speedy accomplishment. In an undertaking of such vast magnitude, intended to constitute a connecting link between six or eight States, it will be utterly vain and idle to expect success, unless the great work be entered upon in a spirit CORRESPONDING WITH THE GRANDEUR OF THE ENTERPRISE.

Animated by such a spirit, this Convention may give an impulse to this work—certainly one of the noblest which has been projected in modern times—that may ensure its success.

The Commissioners will most cordially co-operate with the Convention in all measures, calculated to advance the great object which has brought us together, and for this purpose will be ready to afford such information as may be required of them.

ROBERT Y. HAYNE,
ABRAHAM BLANDING,
PATRICK NCBLE,
THOMAS SMITH,
THOS. L. JONES,
CHARLES EDMONSTON.

Commissioners
on the Louis-
ville, Cincin-
nati and
Charleston
Railroad.

Knoxville, 5th July, 1836.

REPORT OF COLS. GADSDEN, BRISBANE AND MR. HOLMES' EXPLORATION.

The commission with which we were unexpectedly charged but 30 days since by the citizens of Charleston, and requiring that a report be made to you at an early date during the present session of the Legislature of South Carolina, allowed, as you must readily perceive, scarcely time for an imperfect reconnaissance of the country, on the shortest line of communication between the two important points, now proposed to be connected by a Railroad. With no previously prepared data as a guide, with little more knowledge, from personal examination, than what a general geographical history of our native and contiguous Southern and Western States afforded, we can, on a requisition so sudden, and within a period so limited, only present such views, as a distant *Coup D'œil* of the country has but imperfectly impressed on our visions. Placed, as it were, upon an eminence to report the objects on the horizon, we can from that elevation estimate but speculatively, those vast resources; *Agricultural Mineral*, and *Commercial* of the "land in sight," which may be developed by a Railroad from Charleston to Cincinnati; and point to those topographical characteristics, the *Swamps*—the *Rivers*, and the *Mountains* of its various sections, which may prove valuable in directing the future examinations of those who may decide on the route, by which they can be most judiciously passed, and devise the mode, by which the obstacles they present, can with the greatest facility be surmounted. In execution of the commission assigned us, to ascertain the

practicability of a route for a Rail Road from Charleston to Cincinnati, we left the former place on the morning of the 7th of November—Col. Gadsden proceeded via Aiken, Edgerville, Abbotville, and Greenville, and re-united with Mr. Holmes and Col. Brisbane on the road at the Saluda Gap; who passed on their route to that place by Columbia, Newberry, Laurens, and Greenville. In addition to our own personal observations, we collected on our way much valuable information, which was cheerfully volunteered by all classes of citizens, corroborating the fact as to the various practicable routes for roads leading in every direction from the lower to the upper districts of South Carolina. The Eastern and Western territorial divisions of the United States are divided from each other by parallel chains of Mountains, stretching from the North East to the South West—where these elevations are united into a single range; the ridges and the valleys of the rivers which flow from them in opposite directions, form slopes by which their bases are approached, and the interlocking heads of the same stream, cleave gaps or open gorges, by which their summits may be overcome. But for these breaks, and depressions in the mountain regions of the United States, affording facilities for the construction of roads; a people bound together by the strongest political ties, would be entirely estranged from each other, in all their commercial and social relations. In any projects therefore, for artificial channels of communication, by which these barriers are to be passed; the Engineer is irresistibly directed in his enquiries, to those peculiar natural conformations of a country, which afford facilities by which even the natural obstacles are overcome. For it may be assumed as a position, scarcely controvertible, that where contemplated improvements run parallel with the natural channel-ways of a country, they may be generally pronounced practicable, while the execution of those where the line of direction is at right angles with the ridges and streams of the country, seemingly opposing the works of nature, if not doubtful, are in their difficulties proportionably enhanced. Applying this rule to the geographical conformation of South Carolina, with her rivers and parallel ridges, running almost direct from the Alleghany to the sea, and we would unhesitatingly, without the confirmation of personal observation, or the testimony of others well acquainted with the topography of the various districts of the State, decide on the practicability of approaching on planes of easy ascent, from almost any quarter in the low country, to the eastern declivity of those Mountains. It does not therefore admit of a doubt, but that by the ridges between the Savannah and Saluda; by those between the Saluda, Reedy, and Enoree, as well as by those which divide the waters of the Tyger and Pacolet, and the Pacolet and the Broad; no serious obstacles would be encountered in the grading of a Railroad through South Carolina, to the eastern base of the Blue Ridge.

Which of these ridges or valleys however would present the greatest facilities for construction, and which of them under all circumstances would be deemed the route through South Carolina to be preferred, would depend upon a more minute examination of each, and a comparative estimate of the advantages of all, than we have been enabled to bestow upon them, as well as upon the *determined point*, at which cit

may be found most judicious to scale the Blue Ridge. In the examination of the project now under consideration, it will be found that the great mountain barrier interposing obstacles to any communication between Carolinas and the West, are on the borders of those States, split or divided into four distinct or parallel chains—1st, the *Blue Ridge*, of which the Saluda in South Carolina is but a spur; leaving the main range near the sources of the Saluda river, and terminating in an easterly direction near the waters of the Broad, while the main or Blue Ridge continues its onward course in a north easterly direction through the valley of Virginia—2d, a *middle chain*, no less formidable in its altitudes, and designated at various points, as the Unika, Smoky, Iron and Bald Mountains, of which the Paint Rock is an imposing member—3d, the *Clinch* and *Copper*, ridges between the waters of the *Clinch* and *Powell*—and 4th, the *Cumberland* Mountain, the great reservoir of all the tributaries, which flow through Western Tennessee and Kentucky to the father of rivers. The line of the contemplated Railroad from Charleston and Cincinnati, not only crosses at right angles these Mountain ranges, but in addition, five considerable streams, with their minor ridges. The *French Broad*—the *Nolachucky*—the *Holston*—the *Clinch*—and the *Powell*. From a careful inspection of the map, therefore, this portion, or what may be designated the *middle section* of the projected railway, from the base of the *Blue Ridge* east, to the western termination of the *Cumberland* Mountain, would seem in its execution to be opposed by obstacles truly appalling, if not insurmountable. With these views, we deemed it advisable to bestow most of the limited time allowed for our examination to this section of country. Assuming, that if more than the probable difficulties on this line to be encountered, could by any possibility be surmounted, we might with the more confidence, so report on the *practicability* of the grand project, as to authorize a more minute survey of the whole ground, than it has been in our power to make of it. Under these impressions, after a general and united reconnoissance of the gaps in the Saluda Spur, the valley of Green River, and some of the depressions in the *Blue Ridge*, affording facilities for scaling it; we separated, and so distributed the work of exploration, as to ensure within the time limited, the most extensive examination of this middle section, within the range of our inquiries. Col. Gadsden descended the *French Broad*—penetrated the centre of East Tennessee, and examined the communications across the interposing ridge and rivers of that valley, to the plains of Kentucky. Col. Brisbane was left to complete the observations jointly commenced on the *Blue Ridge*; to examine all the gaps or depressions by which its summit from the east could be attained and the communications west descending to the *French Broad*. The additional object devolved on him of descending by the *Broad* River, and of inspecting the facilities which its valleys or ridges offered for a road from the upper to the lower districts of Carolina. Mr. Holmes' attention was directed to the examination of a possible line of communication from Morganton, in Burke county, North Carolina, by the *Yellow Mountains*; the water of the *Tow* and *Watauga* rivers, through *Carter* or *Washington* counties, in *East Tennessee*—and by *Estilville*, in *Virginia*, to the sources of the *Big Sandy* or *Licking*; the valleys of which it was sup-

posed might afford favorable descents to Cincinnati, the point of designation on the Ohio river.

In this direction we were particularly attracted by the fact, that drawing a line from Cincinnati to Charleston, it would pass through this very section of country, as the shortest possible line of communication between those two designated extremes of the road contemplated. Another consideration recommended an examination in that quarter, that as early as the year 1831, there was a convention of citizens held at *Estilville*, on the subject of a road connecting the Carolinas with Kentucky by that route, and to which delegates from Charleston were invited, and were deputed. This encouraged a hope that the result of that meeting might shed much light on the geographical and topographical subjects of our inquiries; and in this we were not disappointed.

[To be Continued.]

It is not long since we introduced to our readers "Flint Soap." We now give specifications for a Soap from "mica, steatite, or porcelain clay." No end to wonders in this world. By the way, would not the soap be apt to dull razors, and render it worthless as a shaving soap?

From the Repository of Inventions.

SPECIFICATION OF THE PATENT GRANTED TO JOHN HEWITT, FOR A COMBINATION OF CERTAIN MATERIALS OR MATTERS, WHICH BEING COMBINED OR MIXED TOGETHER WILL FORM A VALUABLE SUBSTANCE OR COMPOUND WHICH MAY BE USED WITH OR AS A SUBSTITUTE FOR SOAP.

My invention consists in combining the well known substances called mica, steatite, porcelain earth or clay, and gard or guard with soap, in the proportions herein particularly defined.

Having thus stated generally the object of my invention, I will proceed to describe the manner of performing the same; I take from one-eighth to three-fourths by weight of mica, steatite, of porcelain clay, or of gard, ground or reduced to a fine powder, or I take from one-eighth to three-fourths of these substances combine, and mix or incorporate such one-eighth to three-fourths with seven-eighths to one-fourth by weight of the ordinary soap of commerce, known by the names of mottled and yellow soap, but I prefer, and usually employ, one-half of the earthy substances and one-half of soap, which, when combined in any of these proportions, will form a compound to be applied to the ordinary purposes of soap.

When it is desired to make a finer quality of soap intended for the purposes of the toilet, I take from one-eighth to one-half by weight of mica, steatite, or porcelain earth or clay, and mix or incorporate the same with seven-eighths to one-half of the soap of commerce called curd soap, and thus produce a valuable compound, which may be perfumed as is usual in fancy soaps.

Having thus given the definite proportions which constitute my invention, I will now point out the manner pursued by me in mixing or compounding the aforesaid substances with soap. Having determined on the proportion of mica, steatite, porcelain clay or earth, or of gard, which, as aforesaid, must be within the proportions of one-eighth to three-fourths by weight of the mass intended to be produced, and this is to be the case whether these substances

are combined or used separately, for it is essential that these substances should not exceed or be below the proportions by weight here given, these being essential to the best effect being obtained. The soap, whether yellow, mottled or curd, is sliced into small pieces, and mixed with the substance or substances above mentioned, and the whole mixture or compound being placed in a suitable vessel is to be melted, (sufficient water being added to facilitate the operation,) and the compound, when well stirred and sufficiently blended, is to be allowed to cool in the ordinary manner of making soap, and cut into bars, it will then be ready for sale. Or it will be evident that in place of taking the soap of commerce, the compound may be produced by adding the substances in the proportions aforesaid to the melted materials of soap previous to allowing them to cool, which would be the most advisable course for a soap maker. It will be, perhaps, desirable here to observe, that the substances hereinbefore mentioned are found plentifully in Cornwall, and that the substance named gard or guard, is that part of the sediment which first precipitates itself in washing or cleansing porcelain earth or clay for the use of the China manufacture.

Having now described the nature of my invention, and the manner of carrying the same into effect, I would observe that I am aware that the various clays and earthy substances have been before used for cleansing both separately, and in some instances combined with soap, I do not therefore claim the mixing of the aforesaid substances generally with soap, or of the application of them to the purposes of scouring or cleansing other than in the proportions before mentioned. I do therefore hereby declare that I confine my claim of invention to the mixing or compounding of mica, steatite, porcelain clay or earth, and gard, within the proportions of from one-eighth to three-fourths by weight of the bulk of the compound to be produced with the ordinary soap of commerce, as above described, and thus producing a valuable compound, applicable to the various purposes of soap.—In witness whereof, &c.

Enrolled October 18, 1834.

SPECIFICATION OF THE PATENT GRANTED TO JAMES LEMAN, FOR THE MAKING, COMPOUNDING, IMPROVING, OR ALTERING OF SOAP. SEALED JUNE 4, 1835.

The oxy muriatic gas or chlorine is solid in commerce combined with soda, with potash, and with lime, under the denominations of the chlorate or oxy muriate of soda, the chlorate or oxy muriate of potash, and the chlorate or oxy muriate of lime; the first two in a state of solution, and the last in an earthy state. Chlorine combined with these three alkaline substances has been employed in washing and bleaching but where combined with soap, as described below, advantages and considerable economy are effected in both these operations, and that combination I claim as my invention.

The following are my processes or combinations:

First. To make chlorated soap in employing the chlorate or oxy muriate of soda.—1st. Take equal quantities by measure of a solution of chlorate of soda of a specific gravity of 1.689, and of oil, and mix

them perfectly together.—2nd. Heat the mixture over a very gentle fire to assist its combination.—3rd. Add to the mixture, ley of caustic soda, and continue the operation in the same manner as done by soap-makers, employing successively the ley of various degrees until the saponification is complete.

If, instead of oil, it is wished to fat or other saponifiable substance, it will be necessary to melt it previously over the fire, and then the mixture with the solution of chlorate of soda, and proceed in the same manner as is above directed for oil.

Second. Chlorated soap by the chlorate of potash. The process for the manufacture of this soap is the same as the preceding: mix equal parts by measure, of a solution of chlorate of potash of a specific gravity of 1089, and oil or fat, or a mixture of both. Heat the mixture gently, and add the quantity of ley of caustic of potash or of caustic soda necessary to render the soap perfect. In other respects proceed in the same manner as the common manufacturers do.

Third. Chlorated soap by the chlorate of lime.—To make this soap.—1st. Mix thoroughly one part by weight of chlorate lime with three parts of water, let the insoluble part subside and draw off the clear solution, which is commonly of a specific gravity of about 1072. Make a mixture of this solution with an equal quantity of oil or fat, or of a mixture of both, and stir up this mixture at intervals during three days, so that the combination of the chlorate of lime with the oil or fat may be complete.—3rd. Add ley of caustic soda at different degrees of strength as is done by manufacturers to make common soap.

Nota.—If fat or grease is employed it will be necessary to mix it with the chlorated solution in a heated state. In other respects the process is the same as before described.

The chlorated solution may be employed weaker, that is to say, if a specific gravity of 1033 or more. After having made the mixture with the oil, it will be necessary to stir it well and let it settle for twenty-four hours, draw on the water, then repeat this operation until the oil is saturated with chlorine to the degree desired. As to the quantity of water retained by the mixture it will be separated from it during the process of saponification, and will remain mixed with the water of the ley employed.

These kinds of soaps may be made by mixing the ingredients cold, and letting them remain for at least twenty-four hours, stirring them often. The ley must be employed at 1360, in the proportion of one-third of the quantity of oil used. Apply a gentle heat (a water or steam bath is preferable on account of the color, until the saponification is complete.

If common soap is melted in a solution of chlorate of soda upon a moderate fire, this soap will become chlorated but it never will be so well combined as that of which the manufacture is above described.

A solution of chlorate of lime may also be added to the common soap dissolved by this means a chlorated soap will be obtained.

If it is wished not to employ the chlorate of soda or potash or of lime for the manufacture of soap, they may be replaced by water saturated with chlorine; or it is still better to saturate the oil or grease by means of a current of chlorine applied directly to it without the intervention of any alkali.

I claim also to form a chlorated soap through the medium of a combination of a combination of chlorine with all other alkaline substances. In witness whereof, &c.

Enrolled December 4, 1835.

From the Journal of the American Institute.
INFORMATION TO PERSONS HAVING BUSINESS TO TRANSACT AT THE PATENT OFFICE.

All former acts are repealed by the act passed 4th July, 1836.

"Patents are granted for any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement on any art, machine, manufacture or composition of matter, not known or used by others before his or their discovery or invention thereof, and not at the time of his application for a patent in public use, or on sale with his or their consent or allowance, as the inventor or discoverer."

The term for which a patent is granted is fourteen years; but may, under certain circumstances, be renewed for seven years, as hereinafter mentioned.

Patents are granted to citizens of the United States, to aliens who shall have been resident in the United States one year next preceding, and shall have made oath of their intention to become citizens thereof, and also to foreigners who are inventors or discoverers.

A patent may be taken out by the inventor in a foreign country without affecting his right to a patent here, if the patent is not delayed in this country longer than six months from the time of taking it out abroad; and any publicity in consequence of such foreign patent does not affect his right to a patent in the United States. A patent is not granted upon introduction of a new invention from a foreign country, unless the person who introduced it be the inventor or discoverer. If an alien neglects to put and continue on sale the invention in the United States, to the public, on reasonable terms, for eighteen months, the patentee loses all benefit of the patent.

Joint inventors are entitled to a joint patent, but neither can claim one separately.

An inventor cannot assign his right before a patent is obtained, so as to enable the assignee to take out a patent in his own name.

The assignment of a patent may be the whole or undivided part, "by any instrument in writing." All assignments, and also the grant or conveyance, of the use of the patent in any town, county, or State, or limited district, must be recorded in the patent office within three months from the date of the same; for which record the grantee or assignee must pay three dollars to the patent office.

All applications pending on the 4th July, 1836, (the time of passing the said act,) on which the duty of thirty dollars has been paid, will be considered as presented under the new act, and will not require a new petition. In all other cases the papers will be returned for correction with this circular explanatory.

"In case of the decease of an inventor, before he has obtained a patent for his invention, the right of applying for, and obtaining, such patent, shall devolve on the administrator or executor of such person, in trust for the heirs at law of the deceased, if he shall have died intestate; but if otherwise, then in trust for his devisees, in as full and ample manner, and under the same conditions, limitations, and restrictions as the same was held, or might have been claimed or enjoyed, by such person in his or her lifetime; and when application for a patent shall be made by such legal representatives, the oath or affirmation shall be so varied as to be applicable to them."

The patent office will be open for examination during office hours, and applicants can personally, or by attorney, satisfy themselves, on inspection of models and specifications, of the expediency of filing an application for a patent.

All fees received are paid into the treasury, and constitute a fund to defray the expenses of the office: hence the law has required the payment of the patent fee before the application is considered; two thirds of which fee is refunded on withdrawing the petition.

It has hitherto been the practice for inventors to send a description of their inventions to the office, and inquire whether there is any thing like it, and whether a patent can be had. As the law does not provide for the examination of descriptions of new inventions, except upon application for a patent, no notice can be taken of such inquiries.

On the application for a Patent.

No application will be considered until the fee for the patent is paid.

The application for a patent must be made by petition to the commissioner of patents, signifying a desire of obtaining an exclusive property in the invention or discovery, and praying that a patent may be granted therefor, as in the form annexed hereto, which petition should be signed by the inventor.

Description of Specification.

"Before any inventor shall receive a patent for any such new invention or discovery, he shall deliver a written description of his invention or discovery, and of the manner and process of making, constructing, using, and compounding the same, in such full, clear, and exact terms, avoiding unnecessary prolixity, as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of any machine, he shall fully explain the principle, and the several modes in which he has contemplated the applica-

tion of that principle, or character by which it may be distinguished from other inventions; and shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery."

It is recommended in all cases where the machine or improvement is complicated, to frame the specification with reference to the drawings.

A defective description or specification may be amended any time before issuing the patent.

For a new Improvement.

"Whenever the original patentee shall be desirous of adding the description and specification of any new improvement of the original invention or discovery, which shall have been invented or discovered by him subsequent to the date of his patent, he may, like proceedings being had in all respects as in the case of original applications, and on the payment of fifteen dollars, as herein after mentioned, have the same annexed to the original description and specification; and the commissioner shall certify, on the margin of such annexed description and specification, the time of its being annexed and recorded; and the same shall thereafter have the same effect in law, to all intents and purposes, as though it had been embraced in the original description and specification."

"Every inventor, before he can receive a patent, must make oath or affirmation, that he does verily believe that he is the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement, for which he solicits a patent, and that he does not know or believe that the same was ever before known or used, and also of what country he is a citizen." (See form annexed.)

If the applicant be an alien, and have resided one year in the United States preceding the application, and have given legal notice of his intention to become a citizen of the United States, he must make oath to these facts before he can claim a patent, for the same sum paid by a citizen.

Of Drawings, and specimens of Ingredients.

The law requires, that "the applicant for a patent shall accompany his application with drawing or drawings, and written references, when the nature of the case admits of drawings." These drawings should be according to the rules of perspective, and neatly executed; and such parts as cannot be shown in perspective, must, if important, be represented in section or detail. When the specifications refer to the drawings, duplicates of them are required, as one must accompany the patent when issued, as explanatory of it, and one must be kept on file in the office.

The drawings must be signed by the patentee, and attested by two witnesses: many drawings have been transmitted without any name or references.

Drawings are necessary, even though a model be sent.

Of Models.

The law requires that the inventor shall deliver a model of his invention or improve-

ment when the same admits of a model. The model should be neatly made, and as small as a distinct representation of the machine or improvement, and its intended properties, will admit; and the name of the inventor should be printed upon or affixed to it, in a durable manner. Many models have been forwarded without a name, and therefore lost or mislaid.

Models must be forwarded at the expense of the applicant.

When the invention is of a "composition of matter," the law requires that the application be accompanied with specimens of the ingredients, and of the composition of matter, sufficient in quantity for the purpose of experiment.

Proceedings on applications for Patents, and on appeals from the decision of the Commissioner.

"That on the filing of any such application, description, and specification, and the payment of the duty hereinafter provided, the commissioner shall make, or cause to be made, an examination of the alleged new invention or discovery; and if, on any such examination, it shall not appear to the commissioner that the same had been invented or discovered by any other person in this country, prior to the alleged invention or discovery thereof by the applicant, or that it had been patented or described in any printed publication in this or any foreign country, or had been in public use or on sale, with the applicant's consent or allowance, prior to the application, if the commissioner shall deem it to be sufficiently useful and important, it shall be his duty to issue a patent therefor. But whenever, on such examination, it shall appear to the commissioner that the applicant was not the original and first inventor or discoverer thereof, or that any part of that which is claimed as new had before been invented or discovered, or patented, or described in any printed publication, in this or any foreign country, as aforesaid or that the description is defective and insufficient, he shall notify the applicant thereof, giving him briefly such information and references as may be useful in judging of the propriety of renewing his application, or of altering his specification, to embrace only that part of the invention or discovery which is new. In every such case, if the applicant shall elect to withdraw his application, relinquishing his claim to the model, he shall be entitled to receive back twenty dollars, part of the duty required by this act, on filing a notice in writing of such election in the patent office, a copy of which, certified by the commissioner, shall be a sufficient warrant to the treasurer for paying back to the said applicant the said sum of twenty dollars.—But if the applicant, in such case, shall persist in his claim for a patent, with or without any alteration of his specification, he shall be required to make oath or affirmation anew, and in manner as aforesaid; and if the specification and claim shall not have been so modified as, in the opinion of the commissioner, shall entitle the applicant to a patent, he may, on appeal, and upon request in writing, have the

decision of a board of examiners, to be composed of three disinterested persons, who shall be appointed for that purpose by the Secretary of State, one of whom, at least, to be selected, if practicable and convenient, for his knowledge and skill in the particular art, manufacture, or branch of science to which the alleged invention appertains, who shall be under oath or affirmation for the faithful and impartial performance of the duty imposed upon them by said appointment. Said board shall be furnished with a certificate, in writing, of the opinion and decision of the commissioner, stating the particular grounds of his objection, and the part or parts of the invention which he considers is not entitled to be patented. And the said board shall give reasonable notice to the applicant, as well as to the commissioner, of the time and place of their meeting, that they may have an opportunity of furnishing them with such facts and evidence as they may deem necessary to a just decision; and it shall be the duty of the commissioner to furnish to the board of examiners such information as he may possess relative to the matter under their consideration. And on an examination and consideration of the matter by such board, it shall be in their power, or of a majority of them, to reverse the decision of the commissioner, either in whole or in part; and their opinion being certified to the commissioner, he shall be governed thereby in the further proceedings to be had on such application: *Provided however*, That before a board shall be instituted in any such case the applicant shall pay to the credit of the treasurer, as provided in ninth section of this act, the sum of twenty-five dollars; and each of said persons so appointed, shall be entitled to receive for his services, in each case, a sum not exceeding ten dollars, to be determined and paid by the commissioner, out of any money in his hands, which shall be in full compensation to the persons who may be so appointed, for their examination and certificate as aforesaid."

Re issue to correct a defective description.

When the applicant wishes to cancel his old patent, for a mistake or inadvertence, he should state the reasons in his application, and expressly surrender the old patent, which must be transmitted to the patent office before a new patent will be issued.—Section thirteen enacts: "That whenever any patent which has heretofore been granted, or which shall hereafter be granted, shall be inoperative or invalid, by reason of a defective or insufficient description or specification, or by reason of the patentee claiming in his specification, as his own invention, more than he had or shall have a right to claim as new, if the error has, or shall have arisen by inadvertency, or accident, or mistake, and without any fraudulent or deceptive intention, it shall be lawful for the commissioner, upon the surrender to him of such patent, and the payment of the further duty of fifteen dollars, to cause a new patent to be issued to the said inventor, for the same invention, for the residue of the period then unexpired for which the

original patent was granted, in accordance with the patentee's corrected description and specification."

And in case of his death, or any assignment by him made of the original patent, a similar right shall vest in his executors, administrators, or assignees, and the patent, so reissued, together with the corrected description and specification, shall have the same effect and operation in law, on the trial of all actions hereafter commenced for causes subsequently accruing, as though the same had been originally filed in such corrected form before the issuing out of the original patent.

Interfering applications.

"Whenever an application shall be made for a patent, which, in the opinion of the commissioner, would interfere with any other patent for which an application may be pending, or with any unexpired patent which shall have been granted, it shall be the duty of the commissioner to give notice to such applicants, or patentees, as the case may be; and if either shall be dissatisfied with the decision of the commissioner on the question of priority of right or invention, on a hearing thereof, he may appeal from such decision, on the like terms and conditions as are provided in the case of applications for inventions not new; and the like proceedings shall be had to determine which, or whether either of the applications is entitled to receive a patent, as prayed for."

Caveats.

The law enacts, "that any citizen of the United States, or alien, who shall have been resident in the United States one year next preceding, and shall have made oath of his intention to become a citizen thereof, who shall have invented any new art, machine, or improvement thereof, and shall desire further time to mature the same, may, on paying to the credit of the treasury, in manner as provided in the ninth section of this act, the sum of twenty dollars, file in the patent office a caveat setting forth the design and purpose thereof, and its principal and distinguishing characteristics, and praying protection of his right, till he shall have matured his invention: which sum of twenty dollars, in case the person filing such caveat shall afterwards take out a patent for the invention therein mentioned, shall be considered a part of the sum here in required for the same. And such caveat shall be filed in the confidential archives of the office, and preserved in secrecy. And if application shall be made by any other person, within one year from the time of filing such caveat, for a patent of any invention with which it may in any respect interfere, it shall be the duty of the commissioner to deposit the description, specifications, drawings, and model, in the confidential archives of the office, and to give notice, by mail, to the person filing the caveat, of such application, who shall, within three months after receiving the notice, if he would avail himself of the benefit of his caveat, file his description, specifications, drawings, and model; and if, in the opinion of the commissioner, the specifications of claim interfere with each other, like proceedings may be had in, all respects as

are in this act provided in the case of interfering applications: provided, however, that no opinion or decision of any board of examiners, under the provisions of this act, shall preclude any person interested in favor of or against the validity of any patent which has been, or may hereafter be granted, from the right to contest the same in any judicial court, in any action in which its validity may come in question."

Extension of the patent beyond the fourteen years.

Section eightenn enacts: "That whenever any patentee of an invention or discovery shall desire an extension of his patent beyond the term of its limitation, he may make application therefor, in writing, to the commissioner of the patent office, setting forth the grounds thereof; and the commissioner shall, on the applicant's paying the sum of forty dollars to the credit of the treasury, as in the case of an original application for a patent, cause to be published, in one or more of the principal newspapers in the city of Washington, and in such other paper or papers as he may deem proper, published in the section of country most interested, adversely, to the extension of the patent, a notice of such application, and of the time and place when and where the same will be considered, that any person may appear and show cause why the extension should not be granted. And the Secretary of State, the commissioner of the patent office, and the solicitor of the treasury, shall constitute a board to hear and decide upon the evidence produced before them, both for and against the extension, and shall sit for that purpose at the time and place designated in the published notice thereof. The patentee shall furnish to said board a statement, in writing, under oath, of the ascertained value of the invention, and of his receipts and expenditures, sufficiently in detail to exhibit a true and faithful account of loss and profit, in any manner accruing to him from and by reason of said invention. And if, upon hearing of the matter, it shall appear to the full and entire satisfaction of said board, having due regard to the public interest therein, that it is just and proper that the term of the patent should be extended, by reason of the patentee, without neglect or fault on his part, having failed to obtain, from the use and sale of his invention, a reasonable remuneration for the time, ingenuity and expense bestowed upon the same, and the introduction thereof into use, it shall be the duty of the commissioner to renew and extend the patent, by making a certificate thereon of such extension, for the term of seven years, from and after the expiration of the first term; which certificate, with a certificate of said board of their judgment and opinion as aforesaid, shall be entered on record in the patent office; and thereupon the said patent shall have the same effect in law as though it had been originally granted for the term of twenty-one years; and the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented, to the extent of their respective interest therein: *Provided, however,* That no extension of a patent shall

e granted after the term for which it was originally issued."

Fees payable at the Patent Office.

All fees must be paid in advance: the amount is fixed by law, except in the case of drawings, the expense of which will be communicated on application for the same.

Every applicant must pay into the treasury of the United States, or into the patent office, or into any of the deposit banks, to the credit of the treasurer, on presenting his petition, as follows:

If a citizen of the United States	\$30 00
If a foreigner, who has resided in the United States one year next preceding the application for a patent, and shall have made oath of his intention to become a citizen	30 90
If a subject of the King of Great Britain	500 00
All other foreigners	300 00
On entering a caveat	20 00
On entering an application for the decision of arbitrators, after notice from the commissioner that the patent is not new, or interferes with a pending application or caveat	25 00
On extending a patent beyond the fourteen years	40 00
For recording each assignment or transfer of patent	3 00
For adding to a patent the specification of a subsequent improvement	15 00
On surrender of old patent, and new issue for mistake or inadvertence of patentee	15 00
For copies of patents, or any other paper on file, for each 100 words	10
For copies of drawings, a reasonable sum in proportion to the time occupied in making the same	

N. B. The patent office does not make original drawings to accompany applications for patents, and gives only copies of the same after the patent is completed.—Draughtsmen in the city of Washington are always ready to make drawings, at the expense of the patentees.

Communications to and from the patent office are free of postage.

All fees, if sent to the commissioner of patents, should be transmitted in gold or silver coin, when they amount to less than five dollars, as bank notes under that sum will not be received.

It is recommended to make a deposit in a deposit bank, for the fee for the patent, and remit the certificate. Where this cannot be done without much inconvenience, gold may be remitted by mail, free of postage; and this is preferred to the bills of the deposit banks, which, however, will not be refused.

In case of deposits, made in the deposit banks, a duplicate receipt should be taken, stating by whom the payment is made, and for what object. The particular patent should be referred to, to enable the applicant to recover back the twenty dollars in case of withdrawal of the petition.

On recovering back Money paid for Patents not taken out.

When a patentee relinquishes or abandons the application for a patent, he must petition the commissioner of patents, stating the abandonment or withdrawal of his petition, in which case twenty dollars will be repaid.

In case of withdrawing petition, the model deposited is by law retained.

Further remedy in Equity for Patentees.

In case of interfering applications with other pending applications or unexpired patents or caveats, a hearing is had before the commissioner of patents prior to the appeal to a board of arbitrators. In other cases the decision of the commissioner on the novelty and utility of the invention is made without a hearing, and from which an appeal may be taken to a court of arbitrators.

When the decision of the board of arbitrators shall be unsatisfactory to a party interested, a bill of equity can be filed in the United States courts, whose decision will be imperative.

On filing the Specification and Drawings as a Caveat.

"Whenever the applicant shall request it, the patent shall take date from the time of filing the specification and drawings, not however exceeding six months prior to the actual issuing of the patent; and, on like request, and the payment of the duty herein required, by any applicant, his specification and drawing shall be filed in the secret archives of the office until he shall furnish the model, and the patent be issued, not exceeding the term of one year, the applicant being entitled to notice of interfering applications."

A full description of the invention is required to enable the commissioner of patents to judge of interferences.

All applications will be examined, and patents issued, in the order of time in which the proper documents are completed.

Exhibitions of Model and Manufactures.

Unpatented models, specimens of compositions, and of fabrics, and other manufactures or works of art, will be received and arranged in the national repository of the patent office as soon as the new building is finished.

Personal attendance of the applicant at the patent office, to obtain a patent, is unnecessary. The business can be done by correspondence (free of postage) or by power of attorney.

Oaths.

Any magistrate authorized to administer oaths is qualified to certify under this act.

Form of Petition.

To the Commissioner of Patents:

The petition of Sebastian Cabot, of Cabotville, in the county of Hampden, and State of Massachusetts,

Respectfully represents:

That your petitioner has invented a new [and improved mode of preventing steam boilers from bursting,] which he verily be-

lieves has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters patent of the United States may be granted to him therefor, vesting in him and his legal representatives the exclusive right to the same, upon the terms and conditions expressed in the act of Congress in that case made and provided; he having paid thirty dollars into the treasury, and complied with the other provisions of the said act.

SEBASTIAN CABOT.

Form of Specification.

To all whom it may concern:

Be it known, that I, Sebastian Cabot, of Cabotville, in the county of Hampden, and state of Massachusetts, have invented a new and improved mode of preventing steam boilers from bursting, and I do hereby declare that the following is a full and exact description:

The nature of my invention consists in providing the upper part of a steam boiler with an aperture, in addition to the safety valve, to be closed up with a plug or disk of alloy, which will fuse at any given degree of heat, to be governed by the proportions forming the alloy, and permit the steam to escape, should the safety valve fail to perform its functions.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation: I construct my steam boiler in any of the known forms, and apply thereto gauge cocks, a safety valve, and the other appendages of such boilers; but in order to obviate the danger arising from the adhesion of the safety valve, and from other causes, I make a second opening in the top of the boiler, similar to that made for the safety valve, and in this opening I insert a plug or disk of fusible alloy, securing it in its place by a metal ring and screws, or otherwise. This fusible metal I, in general, compose of a mixture of lead, tin, and bismuth, in such proportions as will insure its melting at a given temperature, which must be that to which it is intended to limit the steam, and will, of course, vary with the pressure the boiler is intended to sustain. I surround the opening containing the fusible alloy, by a tube intended to conduct off any steam which may be discharged therefrom. When the temperature of the steam in such a boiler rises to its assigned limit, the fusible alloy will melt, and allow the steam to escape freely, thereby securing it from all danger of explosion.

What I claim as my invention, and desire to secure by letters patent, is the application to the steam boilers, of a fusible alloy which will melt at a given temperature, and allow the steam to escape, as herein described; using for that purpose any metallic compound which will produce the intended effect.

Witnesses: SEBASTIAN CABOT.

JOHN DOE.

RICHARD ROE.

If the thing desired to be patented be an original machine, the title, in that part of the petition and specification between

brackets, should be altered thus: [have invented a new and useful machine, &c.] and if an improvement only, thus: [have invented a new and useful improvement on a, or on the, machine, &c.]

Form of Oath.

County of Hampden, State of Massachusetts, ss.

On this day of 183, before the subscriber, a justice of the peace in and for the said county, personally appeared the within named Sebastian Cabot, and made solemn oath (or affirmation) that he verily believes himself to be the original and first inventor of the mode herein described, of preventing steam boilers from bursting, and that he does not know or believe that the same was ever before known or used; and that he is a citizen of the United States:

Signed, A. B., Justice of the Peace.

If the following questions can be answered affirmatively before transmitting the papers, few applications will be returned for correction of omissions:

1. Is the fee transmitted?
2. Is the petition signed, and directed to the commissioner of patents?
3. Is the specification signed, and witnessed by two witnesses?
4. Are the drawings signed, and witnessed by two witnesses?
5. Do the drawings contain references? and if the specification refers to them, are duplicates sent?
6. Has the inventor made oath to his being a citizen, and that his invention is new, &c.
7. Does the specification contain a specific claim?
8. If an alien and resident, is this affirmed or sworn to?
9. Has the model been sent, and how?
10. Is the name of the inventor durably affixed to the same?
11. In case of reissue, is the old patent surrendered?
12. Has the oath of invention been renewed, before applying for a board of arbitrators?
13. Have the fees under \$5 been remitted in coin?

All communications should be addressed to the commissioner of patents.

HENRY L. ELLSWORTH,

Commissioner of Patents.

A new invention for brick making has been patented by one Sawyer. The bricks are made by it from dry clay, and are said to be superior to the common kind in beauty, strength and durability. The texture is much closer than that of the common brick, so that the article absorbs less water, takes paint much better, not requiring more than one half necessary in the old way, and stands fire much longer. The frost likewise does not operate on it, and bricks are turned out of the new machine, at one half the expense, or less, than by any other mode now in use. [Pennsylvania paper.]

AGRICULTURE, &c.

From the Genesee Farmer.
THE DAIRY—ITS PROFITS.
BY W. G.

The first object of a farmer in cultivating the soil is profit; and next to this is the desire of securing the first with as little expenditure of labor and means as is possible. To do this the quality of the soil, its condition, and the size of the farm, must be taken into consideration. Its very situation will in a great measure determine the first; its condition will of course be depending on the judicious or injudicious treatment it has received and as to number of acres, it is evident that without a certain quantity of them, some kinds of farming, such as grain raising, or wool growing, cannot be profitably undertaken. Perhaps there is no one branch of farming that can be so readily adopted to all farms great or small, as the dairy; and while it is clear to raise grain extensively a large farm must be required, and much labor and money expended, a medium farm, one of eighty or a hundred acres will be found best calculated for the dairy, as the hiring of assistants can usually be dispensed with in such cases. For a man with but forty acres to attempt the raising of grain for sale, and at the same time keep the necessary horses and cows and sheep required to cultivate the farm, and supply the family, would be an unprofitable undertaking; but on such a farm a dairy may be kept that will be a source of great profit, when compared with the capital invested.

To make this matter clear, it may be best to make a few estimates, in all cases getting as near well established results as possible, and where any thing must be left to conjecture, always being careful to err on the safe side of the calculation. A farmer wishes to commence a dairy with ten good cows, not herd book stock, but good native animals. The price of cows for several years past in the spring of the year has varied from 18 to 22 dollars—we will call it 20—thus making the cost of his cows 200 dollars. For pasturing cows it is generally estimated that two acres to each one will be required; and it may be so as pastures are generally laid down, but where the turf is clean and close and the soil in good heart, we are confident something less will be sufficient to give them every advantage. The interest on the twenty acres required, for six months, the time the dairy will be in operation, at 30 dollars per acre, will be 21 dollars. The interest on the money invested in cows, will be 7 dollars. A dairy maid, if one is required, for 6 months, at a dollar per week, twenty-six dollars. The expense will stand thus:

10 cows, at \$20 each,	\$200 00
Interest on do. 6 months,	7 00
Interest on 2 acres to each cow,	21 00
Dairy maid 6 months,	26 00

Total expense, \$254 80

If a dairy is a cheese dairy, much will be depending as to the receipts, on the qualities of the milk produced, and the skill shown in making. The quantity of cheese produced, varies much in different dairies, and in estimating profits a medium rate must be selected. Mr. Brown, of Otsego county, made from thirteen cows 4700 lbs. of cheese, or 361 lbs. to each cow. Mr. E. Perkins, of Trenton, Oneida county, from 78 cows, made 32,000 lbs. or 410 lbs. to each cow; and in the same communication he states, that the dairies in that cheese making

region vary from 200 to 500 lbs. of cheese to a cow. Some experience in the dairy business, and an acquaintance with a dairy district, leads us to suppose that 350 lbs. to each cow would not be an extravagant estimate. The average price of good cheese when sufficiently ripe for sale, for several years past, has not been less than 8 cents per lb., and many dairies find their sales have averaged 9 or \$9.50 per cwt. Making our estimate at 8 cents per lb., the receipts of a dairy of ten cows would stand as follows:

3500 lbs. cheese, 8 cts. per lb.	\$280 00
100 lbs. butter, 15 cts. per lb.	15 00
Whey for swine, \$2 per cow,	20 00

\$315 00

Making the receipts from each cow for six months \$31.50—or if we deduct the butter as being most of it necessary in the dairy room, it will leave the sum of 30 dollars per cow. In some of the best dairy districts of New-England, it has been common to dispose of the cows to drovers after the dairy season has closed, but little feeding being generally required to make them good beef. Cows are not as high in the fall as in the spring, by about 20 per cent., and if our farmer determines to sell his cows in preference to keeping them over the winter, they will bring him about 160 dollars.—This sum must be added to the receipt of the year, making a total of 475 dollars.—The whole will then stand thus:

Receipts,	\$475 00
Expenses,	254 00

\$221 00

Giving to the farmer a clear profit of eleven dollars upon each of the twenty acres used for the dairy. It must be remarked, however, that to produce this result, the cows must be in good heart and tolerable order on the first of May, and have good feed for the summer. Cows that "shirked" through the winter, and pasture on daisies, johnswort, and thistles, through the summer, will not reach the above mark, and the owners may think themselves fortunate if the "summing up" should not show a balance the other way.

If the dairy is to be devoted to making butter, there will be but little difference in the result; though if conducted under favorable circumstances, we think making butter rather more profitable than cheese.—Many persons, however, connected with the dairy, think otherwise, and the odds at any rate cannot be very great. To make butter through the summer, the dairy must be so situated and constructed, that a uniform proper temperature may be maintained, as it is well known if the temperature is too low, the cream will be so long in rising as to become bitter; and if too high, as is usually the case in the summer, the milk sours before the cream has time to separate, by which much of the cream is lost, and the butter rendered of an inferior quality.—In making butter, more is depending on the quality and richness of the milk, than in making cheese, as some cows from the same quantity of milk will give double the amount of cream that others will; and hence the selection of animals must be made with reference to this very point.—This fact accounts for the discrepancy shown in the quantity of butter produced in different dairies, and the varying estimates subsequently made of the butter each cow will produce in a season. There are some cows that will make a pound of butter a day for seven or eight months, with good keep-

ing, and there are others, that if they give half a pound a day may be considered as doing well.

The breed of cows has a great influence in determining the quantity or quality of the milk. The Earl of Chesterfield a short time since instituted a series of experiments on some favorite cows of different breeds, the result of which was as follows: "In the height of the season the

	Qts. milk.	Oz. butter.
Holderness gave per day,	29	34
Long Horn,	19	25
Alderney,	19	25
Devonshire,	17	28
Ayrshire,	20	34

That there are few, if any cows, of our native breeds that will approach this quantity of milk or butter, most must be willing to admit; indeed, an able writer on cattle in the Farmer, thinks that few dairies, or cows, in this country will average more than from 160 to 170 pounds a year. From some experiments we have made, and the reports of some few ordinary dairies for butter, we are disposed to dissent from this writer, and believe that with ordinary care in the selection of cows and the management of the dairy, 200 lbs. may easily be reached. Mr. Curtis, of Marblehead, from common cows and ordinary pasture, for three years, made butter as follows:

1828—8 cows,	1272 lbs. butter.
1829—7 "	1175 "
1830—6 "	1090 "

Which last is at the rate of 181 pounds to a cow, and that under unfavorable circumstances to make the most of the milk. We know of cows that produce a pound a day for at least three months in the height of the season, and that without extra care or feed; still, a native cow, to do this, must be good. For three years past, butter, taking the whole season, will average 15 cts. per lb., and calling the amount produced from a cow 200 lbs., the balance would stand thus:

Butter from 10 cows, 2,000 lbs.	\$300 00
Skimmed milk \$3 per cow,	30 00

\$330 00

Making a difference of fifteen dollars in favor of butter over cheese making. Where the milk is churned new from the cows, the quantity of butter will of course be greater, but we have never made it in that way, and have no authentic information by which the difference, and of course the profits, can be correctly estimated.

Various estimates have been made of the expense of getting in a crop of wheat or corn; but where wheat is put in after a summer fallow, as is usually the case, the expense of the ploughings, harrowings, seed, interest, and wear of implements and the land, cannot be estimated at less than ten dollars per acre. Admitting the average crop of wheat to be twenty bushels per acre, which must, taking the whole, be considered liberal, and a profit of ten dollars per acre, wheat at one dollar per bushel, which may be considered the average price, will be the result. It would be easy to make a list of the items of expense and profit, but there can be no necessity for it here, as every wheat grower can make the estimate for himself, if he needs to be convinced that the above estimate is not far from the truth. If the crop to be compared is one of corn, estimates made with great care by Judge Buel, Clark, and others, show that in ordinary cases the expense of a crop, including labor, seed, use of land, &c., is at least fifteen dollars per acre. The profits

of a corn crop are more variable in our latitude than most others, sometimes running very high, and at others being literally nothing; and we believe that if the average estimate of profit on an acre of corn is put the same as wheat, it is as high as the experience of the farming community will justify.

If the above calculations are correct—and if they are not we should be happy to have the errors pointed out, by any one practically acquainted with the subject—then the difference in profit per acre between the dairyman and the wheat grower, is not so much in favor of the latter as has been generally supposed. It may however be said, that the practice of disposing of the cows by the dairyman after the season is closed, would in the end be suicidal to the business if generally adopted, and hence as a general rule the cows must be kept over the winter, making it necessary to deduct from the profits the expense of keeping through the winter. This may be admitted, and the result would then be as follows:—A cow will eat a ton and a half of hay in the winter, which at the average price of eight dollars a ton, would be twelve dollars for keeping; rather exceeding, if there is any difference, the neat profit on each cow the first season. It must be remembered, however, that if the produce of a good cow will pay for herself and her winter's keeping the first season, then the dairyman enters the field on the second year with an unencumbered capital; the cows are paid for, and the entire amount of their produce, with the trifling deductions above stated, are to be counted as profit. Let our dairy counties look at this matter carefully—it is well worth their attention. W. G.

MASSACHUSETTS HORTICULTURAL SOCIETY.

Saturday, July 30, 1836.

Proceedings of the Massachusetts Horticultural Society at a meeting held at the Hall of the Institution on Saturday, July 30, 1836.

The following Report was made by the President of the Society.

I have the pleasure to lay before the Society two communications from M. Emilien de Wael. This gentleman it will be recollected was the bearer of letters to the Society from Doct. Van Mons and M. A. Poiteau, accompanying a donation of books, received a short time since. Mr. de Wael is an amateur cultivator and the Secretary of the Horticultural Society of Antwerp; he is now on a tour of the United States for scientific purposes, connected with Entomology and the examination of the marine plants of our country, and I have to congratulate the Society on the addition to its list of corresponding members of the name of an individual who is not only highly qualified, but who is entirely disposed to subserve its purposes at Antwerp, located as he is, in a country to which Horticulture, so far as promology is concerned, is indebted for more numerous and valuable acquisitions, than to any other.

Mr. de Wael's remarks on the results of various experiments made in Belgium to protect the *Morus Multicaulis* from the effects of cold must be interesting to those who are endeavoring to protect that plant

from the severity of our own winters; it is desirable to know what is now considered the best method of cultivating it in other countries; for it is by a careful collation of facts, connected with its culture abroad in aid of the actual experiments making here, that we may hope shortly to overcome every obstacle to the extensive cultivation of that invaluable plant.

Respectfully submitted by

ELIJAH VOSE,

President of the Mass. Hort. Society.

Boston, July 25, 1836.

Since I have been in this country I have heard of several complaints, chiefly from the Hartford Mulberry tree planters, of the difficulty experienced the last two years in making the *Morus Multicaulis* stand your winters well.

This kind of mulberry is easily acclimated if a proper mode of culture be adopted in the places where it is planted.

In Belgium, the winters, notwithstanding they are not so severe as yours, often give us great trouble, and the influence of the cold was repeatedly experienced on these Mulberries, which were often killed down to the roots.

The late J. Le Candele of Humbeck, near Brussels, suggested the idea of having different modes of experiment adopted in distant places. And the one which proved most efficient, was to cut down yearly, the *Morus Multicaulis*, in the same manner as is done with willows in a *Salicetum*, that is to say, at a few inches above the soil, and to cover the remaining trunk with dead leaves; in three or four years, the roots being stout enough, they did not require any more covering. From the buds preserved on the plants, fine and hardy shoots came forth, giving larger and more lively leaves to feed the silk worms upon.

It has been since stated to me in a letter from Batavia, (Island of Java,) that this mode of culture is much in use near Manila and in parts of China, not on account of the cold, but in order to keep the *Morus* in a shrubby state, which affords greater facility for gathering the leaves in the season when desired. There the mulberry seems to be planted in fields as Indian corn is here, —in the fall of the year the plants are deprived of their branches, the number of which is continually increasing, and growing in one season from five to eight— which growth is fully equalled by our own. I would advise a similar experiment in this State; it might, perhaps, answer well.

Most respectfully, your ob't. servant,

EMILIEN DE WAELE

Hon. ELIJAH VOSE,

President Mass. Hort. Society.

From the Genesee Farmer.

THE HORSE HOE.

The indifference manifested by many of our farmers as to the tools they work with, is most surprising. If they are good, or of the improved kind, they seem to consider it a lucky chance; if they are bad, or old fashioned, they jog on with them, only hitching on more team; and putting to it more strength. Nobody presumes to dispute the

merits, or dispense with the services of the cast iron ploughs, now-a-days; yet we well remember they were looked upon with suspicion, and worked their way into use slowly. Improved implements in almost every branch of agricultural industry have followed the plough, although perhaps they have not in every instance received or deserved such complete success. There is one however which we have been surprised to find in so few hands, as from the experience of years we consider it deserving a place on every farm. This implement is the Cultivator, or Horse Hoe. Experience has shown that the troublesome process of hilling most plants may with advantage be dispensed with, especially such as corn and potatoes, and that all the benefits derived from hoeing by hand, on clean ground, may be fully realized in the use of the cultivator, and with an expense of time and labor inconsiderable. Where it is necessary to use the hoe at all after the cultivator, it is only in cutting out such few weeds as that could not reach without injury to the plants cultivated, or when desired, in placing small quantities of fresh earth around the growing crop. For stirring up the ground, rendering it loose and accessible to the influences of air and dews, and destroying weeds, the cultivator is unrivalled. In corn planted on lays, or turf turned over and rolled close, it may be used when the plough would disturb the turf, and do nearly as much hurt as good. The cultivator is a cheap implement, not liable to fail when well made, and if housed when not in use, as all tools should be, is very durable. Let those farmers who like a good thing, try the cultivator. G.

From Hovey's Gardener's Magazine, for August.

REVIEW.

THE GARDENER'S MAGAZINE AND REGISTER OF RURAL AND DOMESTIC IMPROVEMENT. CONDUCTED BY J. C. LONDON, F. L. S., H. S., & C. IN MONTHLY 8VO NUMBERS; 1s. 6d. EACH. NO. LXXIV, FOR MAY.

This number is full of valuable information, from which we shall make large extracts. It contains twelve excellent original communications, from various scientific and practical men.

Art. 1.—“Gardening Notices suggested by a tour in France, in August and September, 1835.” By T. Rivers, Jr., the well-known nurseryman at Sawbridgeworth, at which place is one of the finest collections of roses in England. The article is full of interest, being amusingly as well as instructively written. The following extracts include the most useful parts of the paper:

“Forcing the Rose.—At Lisle, in one of the numerous small nursery gardens, I was interested with what might be called a most eligible mode of forcing the rose. In this instance a small span-roofed house was used. A border on each side of the central path was planted with roses budded on dog-rose stems of different heights; the shortest stems being put next the path, so as to make their heads form a sloping bank. The surface of these borders was covered with manure, to keep them in a constantly moist state. The common smoke flues were used for heating this house; and the owner informed me that, by beginning to

force in December, roses were gathered from it plentifully for the market in March and April.

"After the crop of flowers was gathered, the lights were taken off in May, and the plants exposed till the period for forcing again arrived. This method appeared so simple and economical, that I took a memorandum merely for the purpose of suggesting it to your readers; and, for growing moss and other roses for bouquets near London, it might, I think, with some little modification, be carried extensively and profitably into practice. In this way, also, with but very little trouble, a rose garden in full bloom and luxuriance might be created as early as the end of February; and, by selecting some of the ever-blooming varieties, continued nearly through the whole year. And what a delightful sheltered promenade might thus be formed by those who, regardless of expense, would build an elegant span-roofed house, with movable lights, so as to form an agreeable resort, not only in early spring, but also at the end of summer and autumn! for in September and October, and even in November, the Noisette, China and perpetual roses, regardless of having been forced, would bloom again as luxuriantly as ever."

The following is given as the "Mode of Cultivating Pear Trees in Pots, where the object is economy of space."

"A Frenchman's town garden is often a model of economy of space. You will find a choice collection of roses, budded on short stems; a collection of valuable rhododendrons, azaleas, and camellias, in pots; and, perhaps, thirty or forty varieties of pears, all growing in so small a space, that an English gardener, can scarcely believe what he sees. In the garden of M. Smedt, a distinguished amateur at Lisle, the pear trees were literally pyramids of fruit. The summer foreright shoots were tied in so as not to shade the pears, and the following winter they were removed. I suspect, also, that the roots of the trees were annually shortened, to reduce the luxuriant growth which pear trees are so liable to; but this I could not ascertain. The soil was a loose black sand, and the trees models of productiveness. Many of their stems, being too weak to support the weight of fruit, were tied to green painted stakes. Much of this extraordinary fruitfulness in such confined limits was owing, no doubt, to a more genial climate than we have here; as the summers and autumns are warmer, and the wood is always well ripened: but many of the best Flemish pears might be grown in our town gardens with quite as much economy of space as in France, if any regard were paid to culture. This culture is simply to keep them from growing too fast, by confining or reducing their roots; blossom buds will then be formed in abundance. It seems almost impossible to kill a pear tree: for though I have opened a circular trench round a pear tree, and cut off every root to within fifteen inches from the stem, yet it has not suffered, but, the following season, has been covered with blossom. In some of our rich London gardens, cutting the roots annually would have little or no

effect; but I think that, if pots were manufactured expressly for the purpose, of large dimensions, we will say two feet deep, and one and a half foot in diameter, and plunged to the rim, not deeper, a collection of the new Flemish pears might be grown in any small garden. I mention, particularly, that the rim of the pot ought to be above ground, on account of the lateral roots, which would otherwise make their way over it, and give the luxuriance which it is so necessary to check in order to get fine fruit. To keep the trees under control in this respect seems to be the grand object of pear tree culture; and I feel assured that this may be attained by growing the trees in pots, by keeping the surface well supplied with manure, and, in summer, by watering with liquid manure. I hope ere long to see as many amateurs of pears as there now are of dahlias and roses; and, in all the principal nurseries, specimen plants of every variety in cultivation, growing and bearing abundantly in plunged pots. One precaution must be strictly urged.—Every gardener is aware of the tendency of the pear tree to make what is called a taproot. This the plants in pots will most assuredly do, if not checked, through the hole in the bottom. I therefore recommend that, in November or December annually, a trench be dug by the side of the pot, which must then be turned on one side, and every vestige of a root which may appear through the hole cut off with a spade. In the course of a few years a bunch of fibrous roots will be formed, that will require no other trouble than being annually disturbed; that is, the pot turned completely on one side, to prevent their giving too much luxuriance to the tree, by spreading into large feeders."

At Versailles are numerous small nurseries, who principally grow plants for the flower-markets of Paris. Grapes are ripe there in the open border by Sept. 6. *Magnolia tripetala* was ripening seeds at the same date. Hundreds of yellow China roses, budded on short stems, were covered with flowers. What a splendid sight! The principal plants grown are *Kalmia latifolia*, and glauca, azaleas, rhododendrons, &c.; but it is stated they are not sold so cheap as in England.

In the *Jardin des Plantes*, at Paris, *MacLura aurentiaca* was bearing fruit. The original plant of *Æsculus rubicunda*, raised there by Michaux, in 1812, is now a fine specimen. Two new iron palm-houses were [1835] being erected, which, it is supposed, will surpass any thing of the kind ever yet built; they are the boast of the Parisians. Iron curtains are attached to most of the green-houses in France, to protect them from hailstorms, which are very prevalent on the continent, as will be seen in another page of the present number.

The following remarks allude to the purple laburnum, of which much has been said in England, and much imposition, we believe, carried on in the sale of the plants.

"The purple laburnum, of which so much has been said lately, was growing here in great perfection. It came accidentally from seed among some common laburnums, in 1828, in the nursery of M. Adam, whence

its name of *Cytisus Adamii* in some catalogues. A fine plant was shown me by M. Camuset, which appeared to be half *Cytisus purpureus*, and the remainder purple laburnum. On examination, the curious fact was ascertained, that the purple laburnum, which is evidently a hybrid between *C. purpureus* and *C. Laburnum*, had partially returned to the habits of one of its parents, the *C. purpureus*. This is surely a most unusual occurrence. Here was no trickery of grafting practised; for I saw nearly a similar fact produced, in Jan. of the present year (1836), on a tree which I had sent to the Hon. C. Herbert of Ickleton, Cambridgeshire, in 1834, which presented precisely the same appearance. At the extreme end of one of its shoots there came forth a branch of the pure *Cytisus purpureus*, with its small leaves and peculiar habit, appearing as if budded on the purple laburnum. Have you in your long experience, ever seen any fact approaching to this, viz. of a tree returning from hybridisation to the state of one of its parents?"

Among the French gardeners, the practice is adopted of surface manuring the soil, and, more particularly, roses: the importance of this system may be seen from the following observations:—

"During this last dry summer, when they constantly required water, without this, the surface of the ground would have been regularly baked and impervious; with it, the water poured down did not rapidly evaporate, but carried to the fibres a constant supply of nutriment from the manure. What an excellent hint does this give to planters on poor, stoney, sandy, or chalky districts in this country! On such soils all the manure should be put on the surface, and left for the worms and the rain to force it in. In the private garden attached to the Luxembourg Palace, and open to the members of the French Chambers only, are some of the finest rose trees in the world, apparently of great age (I regret not ascertaining this more correctly) and in vigorous health. Many of the stems of the standard roses in this garden are as thick as a stout man's leg. They are not budded on tall stems, their average height being, perhaps, from four to five feet; and they support themselves without stakes. Though so old and so large, they have regular annual culture, their heads being pruned every season, and the surface of the ground constantly manured. In this we have yet much to learn from our neighbors. With us the general mode is to plant a tree, and leave its after-growth to chance. Of course I now allude to amateurs and those gentlemen who amuse themselves by being their own gardeners; and, perhaps, this hint may induce them to give all their trees and shrubs some little annual notice."

We have frequently heard it stated, by many of our amateur gardeners, that tree roses are of very short duration in our climate; that from some causes they suddenly died off before the cultivator was even aware they were in an unhealthy state. These causes have been by some attributed to the effect of climate—by others to their cultivation—and by many to improper

stocks, on which they are budded. We have not had sufficient experience to allow us to offer any information on the subject; but so far as we have grown the tree roses, we have found them to flourish equally well with the dwarfs. The severity of last winter, which, as almost every one knows, was unprecedented for its duration, as well as for its intensity of cold, left unharmed some dozen or more of tree roses, among which were two or three hybrids that were fully exposed to the weather. The ends of the shoots were killed more or less, as were also the dwarf ones, but they grew as well and flowered as freely as ever we have seen them. We are rather inclined to the opinion of the author of this paper, that it is more from neglect than from any effect of climate or soil. It is too often the case that after a plant is set out, whether it be a fruit tree, a vine, or a shrub, nothing more is thought of it, unless it be the thought of wonder and astonishment that it should not flourish and bloom as well as those under the care of the experienced cultivator. It is impossible to expect plants to grow of themselves; they need care and attention, and, unless they have it, they must not be expected to repay the cultivator by either brilliant blossoms or vigorous growth. We do not hesitate to say, that tree roses will live to as great an age and blossom as finely in our climate, as those mentioned in the above extract.

Numerous beds of seedling China roses (*Rosa indica*), and the tea-scented China roses (*R. indica odorata*), were in full luxuriance of bloom on Sept. 10th, which was attributed to the superiority of the climate. Those little petty jealousies which are too common among our gardeners, it will be observed, by the following extract, tend to have no good effect upon the advancement of horiculture or floriculture:—

"Some most superb varieties were among them; but M. Hardy is rather chary of his roses, and does not like them to be distributed hastily, patronising the old fashioned idea of possessing what his neighbors have not. It is amusing to find very prevalent here the little jealousies and envyings that at one time were so common among our florists. If a rose that has been raised from seed by M. Hardy is praised in the presence of another celebrated amateur near Paris, it is always responded to with 'Bah!' and a shrug of contempt. Reverse this, by praising the amateur's rose to another, and you will find the same effect produced. It is therefore most prudent, if you wish to remain in the sunshine of favor, to limit all your admiration to the roses present, forgetting that there are any other roses or rose amateurs in the world.

"Among the seedling roses in this garden were some most curious hybrids, between *Rosa* or *Lowea* *berberifolia* and other roses: they had not yet bloomed, but they looked very interesting, owing to their peculiar habit. A custom in France among rose-growers gives rise to many (to us) very uninteresting names. An amateur who raises roses from seed is regularly besieged by his lady friends to name one after them. He therefore keeps a book in which applications are duly registered, and

this is only deviated from, under very peculiar circumstances; hence we have Madame Desprez, Madame Hardy, &c. I often think some of the fair applicants have not been in high favor when I find very bad roses honored with their names, which are soon consigned to oblivion. On the contrary, if you find a cultivator names one after his wife, it is generally a very fine flower, as is the case with those above mentioned. I think this is generally a very safe criterion for judging of the goodness of the flower, merely by the name; for, if the unfortunate grower has a termagant wife, I am quite sure (from the active part French women take in business) that she would not allow her name to be attached to a bad rose; and if an affectionate partner, his feelings will prompt him to honor her name with a fine flower."

The Paris Nurseries.—The nursery business in Paris seems to be at a low ebb; the writer states that there is not a respectable one in the vicinity. That of Cels is much reduced. Noisette has retired. Fion's nursery is in good taste, but very small. It is said that new and rare plants are not patronized, and only flowers and flowering plants for the market are worth cultivating. This depression of the nursery business the writer attributes partly to the following cause:—

"Another cause for the slovenly and bad state of the French nurseries is, that the instant, by plodding, the proprietor accumulates eight or ten thousand francs, he considers himself a man of fortune; and, instead of investing it in improvements in business, as we do, he lives on the interest, and feels proud in being called a gentleman; for, however respectable we think a man in large business, the French do not; but consider an idle man of thirty pounds per annum as much his superior. I have found this from experience; as an amateur, you may command any thing; but if you avow yourself *un commercant*, ten to one, but the tone is changed. When an Englishman is told the amount of property that some of these "men of fortune" possess, it is impossible to repress a smile at the extraordinary smallness of the sum which contents them; but then *soupe aux choux* (cabbage soup without meat) five days out of seven is cheap living, and coffee is also cheap; and these are all a Frenchman cares about at home; though, if you take him to a restaurateur's, and treat him with a good dinner, it is amazing how he will enjoy the good things of this life."

This is a true trait in the French character.

Commercial Rose Nurseries in Paris.

—Nothing can be more insignificant, both as to size and stock, than the nurseries of the commercial rose-growers near Paris; they seldom exceed one acre, and more frequently contain but half that quantity of ground; in which standard roses of all heights, and dwarfs of all sorts, are grown in the same rows; presenting, to a stranger, an inextricable mass of confusion. It would be difficult to execute an order for a general good collection from any one of these nurseries; but they

are so numerous, that twenty may be visited, for twenty sorts of roses, with but little difficulty. I had concluded that M. Laffay, and one or two others, whom I knew to have been in our English nurseries, would have adopted, in some degree, our orderly arrangement; but they had not in the least deviated from the custom of their neighbors; and M. Laffay's little garden, of half or three quarters of an acre, was as full of roses and confusion as any that I saw."

With the Cemetery of Pere la Chaise the author was not very well pleased; too many evergreens are planted about the graves, forming a dreary and gloomy mass. The cypress and weeping willow, the two most appropriate trees for planting in such situations, are rarely seen. The same may be said of the Cemetery at Mount Auburn; we have been surprised to see so few cypresses and weeping willows planted, while masses of arbor vitae and balsam firs are scattered in profusion around many of the graves. We hope the proprietors of lots will give some attention to this, and plant more flowers and fewer trees, and those appropriate to the scene.

From the higher parts of Pere la Chaise the view of Paris is said to be most beautiful. The following remarks in regard to this place we commend to the attention of every person interested in the cemetery of our vicinity; they are applicable in every instance:—

"How much it is to be regretted that a finish is not given to this interesting place by removing and thinning the overgrown and crowded trees, and planting others more appropriate; filling up the hollow paths, and giving some of them a fresh direction! In short, it ought to be under the management of a committee of taste, rather than left to individual caprice."

How delightful and pleasing a view of the city and environs of Boston might be opened, by cutting away some of the trees and brushwood which surround the highest part of Mount Auburn, and from where nothing can now be seen but the blue sky above. In the foreground might be traced the gentle curvings of Charles River, beyond and to the left of which, Cambridge, with its colleges and retired residences, and, farther still, the distant city. On one side would be seen the rich scenery of the highly cultivated and fertile village of Watertown, with its noble sheet of water, and, on another, the adjacent towns of Brighton and Newton, with their quiet villas and picturesque landscape. Indeed, we know of no spot where the surrounding country could be viewed with more advantage—no place where the many strangers who resort there during the summer season could gather a more favorable opinion of the varied scenery and highly cultivated character of the vicinity than on this spot. We have long hoped that this rare opportunity would not have escaped the observation of the proprietors of this interesting place—and we look anxiously forward to see it carried into effect.

The second article is by our well known and practical agriculturist, Judge Buel, "on the Excretory functions of Plants."

The third article is a continuation of designs for laying out suburban gardens, with wood-cuts.

Art. 4. contains some account of the "Indigenous and Exotic Trees of Switzerland."

The total number of ligneous species of trees in Switzerland is two hundred and eighteen, of which fifty five rarely exceed the height of two feet; one hundred and one are shrubs, varying from two to ten feet; twenty-four are shrubs and low trees, not exceeding twenty-five feet in height, and thirty-eight are trees which surpass twenty-five feet. The best vineyards of Switzerland, as to quality, are those of Valais and Tessin. Those of the Canton de Vaud furnish a fine wine, and bear enormous crops, in consequence of the manure which is lavished upon the lands.

Articles 5 and 6 are not of much interest to our readers.

The seventh details a method of grafting rhododendrons, particularly that magnificent species the alta-clerense. We give the writer's own words:—

"Having been successful in propagating *Rhododendron alta-clerense* in a way that I have not before seen practised, I make it known to you, hoping that my doing so may induce others to practice it; and trusting it may be the means of making this scarce species of this beautiful genus of plants more abundant. Calling at Chatsworth last spring, I observed that they had a fine plant of it beautifully in bloom; and I begged the favor of Mr. Paxton to allow me to take a small sprig, which he kindly permitted me to do. I then inserted the end of the sprig into a potato, and brought it home with me a distance of eight or nine miles. Happening to have a small plant of *Rhododendron ponticum* in a pot, I cut it down to about five inches above the pot, and grafted it in the whip manner with the small sprig thus procured, letting the end still remain inserted in the potato. I then clayed it, and put it under a hand-glass in a coolinery, where it united to the stock, and is now a healthy plant, standing out under a south wall."

Articles 8, 9 and 10 are valuable, but we have room only for one or two extracts from the 8th, upon the preparation of grape borders to graperies or green-houses, and the pruning of the vines. The author of this paper (entitled an Essay upon the Cultivation of the Vine under Glass,) gained the first prize at the St. Andrews Horticultural meeting in September, 1835.

"I now come to the preparation of the border. The situation, if not naturally dry, must, of course, be rendered so by draining. The best bottom, in my opinion, is one formed of large flat stones, got from the top of a lime rock, which is of a nature that would assist the growth of the vines when they reached it. The border ought not to be deeper than from two to three feet; as, if it is more, the roots of the vines will get away from the action of the summer weather, and the good of the manure that may be put on the surface. Instead of having the border almost composed of a stiff clay, as is often the case, I would

have it formed of decomposed turf and good black earth, with a sufficient quantity of decomposed cow-dung, vegetable mould, and cold [slaked] lime, well mixed by frequently turning it, and which should be allowed to lie for two years if convenient.— Having the border filled in and subsided, I would plant the vines in rather a poor soil, as the roots will run farther in such soil, the first year, than in a strong rich soil. I would have good strong plants planted close to the wall on the outside, and introduced through holes made in the building, from four to six inches in diameter, projecting upwards towards the inside, and proceeding from a few inches above the surface of the border on the outside.

"I would not plant more than one plant for every two sashes in the house, as the less the roots are interwoven with one another the better; and there is no difficulty in filling any house in this way. I would train up only two shoots the first year, keeping the sashes of the house on all the first season, until the leaves have fallen off; at which time I would cut down both shoots to three buds. The second season I would put on the sashes the first of March, giving plenty of air through the day, and shutting up at night. It will be observed that I have allowed three buds to remain on each shoot of last year's growth, which I would train up to their full length. There should be a little fire put on this season, about the latter end of August, at night, or when the nights turn cold; and this fire should be continued until every leaf falls off. The third season I would allow the shoot in the middle of the sash to remain, nearly to the top of the house, cutting down the other two to two buds, or eyes, which will produce two shoots on each side of the fruiting one, and which are to be trained up to their full length.— The house may be shut up about the 1st March, and the fire lighted about the middle of that month, the heat being raised gradually to 75°, at which it may be kept until the fruit is ripe; when it should be allowed to fall off by degrees, but not entirely discontinued until the whole of the leaves have fallen off.

"I now come to the winter pruning for the fourth season. It will be observed, that I had one fruiting shoot and four young shoots for every sash last year: the old one I would allow to remain, with spurs of three buds, and one of the young shoots on each side of it, nearly to the top of the house, the other two I cut down to two buds, which will produce two young shoots on each side of the three fruiting ones, to be trained up to their full length. If the vines have been all along treated as above, they will now be very strong, and will be able to stand forcing nearly a month earlier, if required; and, also, more heat than when they were younger: indeed, I consider that vines, after they have attained to the age of standing forcing, should have much more heat than is commonly given to them.

"I will now describe my method of winter pruning for the fifth year, which will show how I would continue it. It will be observed that I had three fruiting

shoots, and four young ones, for every sash last year; the spurred one I cut away altogether, and spur the two which had only fruited one year, with two of the young shoots, which will leave two for cutting down, to produce four young shoots again. Now it will be seen that I have always two spurred shoots, and two young shoots fruiting, and two to cut down; which is not only a regular method of pruning, but one which will keep the vines in a far more growing state, than the common methods of having so much old wood upon them. It will be seen by this regular method of winter pruning, that the summer pruning can be done in much less time, which is also an advantage, by my method of performing; which is, to pinch off all the laterals which may appear below the fruit, and one bud above it; continuing to pinch off all above the next bud, as the plants grow, for the whole season. With regard to the number of branches which I would allow to grow on each fruiting spur, it should be all that set well, as the vines will be able to bring to maturity almost all the fruit they show, if treated in the manner I have endeavored to describe."

Article 11 is a plan for growing Potatoes and Dahlias on the same ground and in the same season. We believe this system is pursued by some of the florists in Philadelphia; at least, we have been so informed. We have no doubt it will answer well; and to some persons who wish to combine the useful and ornamental, and who have but a limited piece of ground, it may prove an excellent mode.

"In the autumn, when the leaves have nearly all fallen from the trees and shrubs, and the seeding weeds are near coming to seed, I fork over all the spare ground where crops have been growing, which leaves it in a neat state during the winter. In February I plant my potatoes (the early Shaws,) which I generally put into the ground whole; but, if the potato is large, I divide it by drawing the knife through the middle of the cluster of eyes at the end of the potato. I begin planting the large beds, having the first row a convenient distance from the edge; after setting down the line, I dig a trench without treading upon the spade, and, as I come back, clean out the trench to about four inches deep. I put in the sets, then remove the line three feet or three feet and a half, and dig another trench in the same manner, having a wooden rake by me to pull in the earth over the sets, and rake the ground even as the work of planting goes on. I next remove the line two feet, and dig another trench, which leaves but sufficient space for the moulding up of the potatoes. I next remove the line three or three and a half feet, and so on. As soon as the potatoes are grown a sufficient height to be seen, I fork the ground one fork wide on each side of the row, by thrusting in the fork and pressing it down, so as to raise the earth, and thus leave it not to throw it out. When the plants are sufficiently high, I mould them up, observing to mould them highest on the wide side, so as to give the stalks an inclination to fall between the narrow rows, where they are to

be kept, so that one side of each row may have the full benefit of light and air.—

About the middle of May, I put on between the wide rows a slight coat of dung, and dig it in close to the moulding of potatoes. By this plan the potatoes do not get at the dung, until they are in a fit state to bear it without injuring their flavor. I plant the dahlias five feet asunder between the wide sows of potatoes, placing a stake about two feet high to each plant, for the purpose of supporting it, and marking the place where a taller stake is afterwards to be placed. In July and August the potatoes are taken up, and the ground cleared. If the weather should be dry, and the dahlias likely to require water, I then make basins round the plants before levelling the soil. Since I have adopted this plan, I have had a more abundant crop of potatoes, and of better flavor; and, instead of the ground appearing as if lying waste after they are gathered, I have something to look at. As my garden rises on each side from the centre walk, I can assure you the dahlias, when the colors are well mixed, make a very pretty appearance."

From the Farmers' Register.

ON THE CULTURE OF WHEAT.

By TH. J. RANDOLPH.

READ BEFORE THE AGRICULTURAL SOCIETY OF ALBEMARLE, AND ORDERED TO BE PUBLISHED IN THE FARMERS' REGISTER.

In obedience to a resolution of this Society, appointing essayists at their October meeting, in 1835, I have the honor to submit the following communication upon the culture of wheat.

Although deep culture is important, if not indispensable with all plants, to permit their roots to penetrate the soil freely in search of food and moisture, and to allow the water in heavy rains to subside without abrading and gulleying undulating lands, or drowning those that are level, it may be doubted whether it be proper to effect this by frequent ploughing, and intermixing too perfectly the surface with the inferior soil or clay. Nature, in all her operations, manures on the surface, and forms there the soil which is best adapted to the growth of vegetation; and if this is inverted by the plough, she reinstates it, in its original position as soon as the land is permitted to remain undisturbed a sufficient length of time, by a process more rapid in warm weather, and on rich soil, where there is much vegetable matter; and slower where the land is less fertile, and the weather colder. This is strikingly exemplified by a fact well known to most farmers, viz: that when good land (particularly clover land) with a distinctly marked surface of dark soil is fallowed for wheat, sown with the harrow upon one ploughing, and permitted to lie a year or two in clover, after the crop of wheat, the dark soil is found again formed upon the surface, occupying the position in which the clay was left by the previous ploughing and the clay, that which was occupied by the inverted soil: a change of clay into soil, and soil into clay. A question naturally arises, what good results from forcing the land to this double process? I should think, none. Economy of labor, however, requires this to be done, as an expeditious mode of disposing of the vegeta-

ble matter, by burying it with the plough; but with one ploughing, the necessity ceases for that crop.

I have said that this process was more rapid on rich soils where there was much vegetable matter, and in warm weather, than on poorer soils and in cold weather. I suppose it accomplished by the gases evolved in the decomposition of the vegetable matter turned under by the plough. If the weather is warm, and the vegetation green, succulent and abundant, the decomposition is rapid, and the quantity of gas disengaged is great. Of these, the carbonic is deemed the great stimulant of vegetable life; and being heavier than atmospheric air, but lighter than the soil, it rises to the surface, insinuating itself into the interstices of the clay brought up by the plough, saturates it, and accomplishes the first process of its conversion into soil. Hence, the cause of a well known fact, that fallows made in June, July, and early in August, become many shades darker on the surface, although exposed to the scorching rays of a summer's sun, and prior to a renewed growth of vegetation upon them. Whilst it less frequently occurs on those made in September, and on those in October rarely, until the next year, vegetation being drier, less succulent, the days shorter, the nights longer and cooler, and every circumstance less favorable to a rapid decomposition in these months. A similar process has taken place on the corn land after the cultivation of the corn has ceased, and before seed time. The fertile appearance of these lands at that time is familiar to every one. [a]—This recently formed and forming soil, my experience has convinced me, is the proper surface for wheat. A second ploughing, or fallow intermixes it with the inferior soil, and the use of the large plough on corn land produces the same effect. I formerly believed two ploughings necessary as a perfect preparation for a wheat crop. When pressed for time, I used heavy harrows as a substitute for a second ploughing, often where there was a strong growth of summer grass: such portions have always produced more grain though perhaps less straw, than that which had been twice ploughed. I once fallowed twenty or thirty acres of land in February, ploughed it with a two horse plough whenever the grass and weeds grew in the summer—it was ploughed, in all, five times before seeding on the first of October, and although it suffered from no disaster, it produced a wretched crop for the year and the land. I have occasionally coultured and harrowed small pieces of land, and prepared them without turning the surface with the plough; and have, uniformly, found the straw brighter, and the wheat more in perfection, than on the adjacent land which had been ploughed, and the surface inverted, although both were very fine. In 1822, on four plantations then under my direction, the corn crop being very forward, about half of it was removed in September, and the land ploughed with three-horse ploughs. The preparation appeared to be perfect, the earth light and thoroughly pulverized, and the grass entirely rotted: the land was harrowed and then sown, and the seed harrowed in. In the mean time, the grass had continued to grow on the portions of the field not ploughed. When the seeding of the first was completed, the rest was sown among a heavy crop of grass, with scoops, merely scarifying the surface, for nothing more could be done: the whole process was tedious and unpromising, yet the perfect preparation by which the soil

had been inverted by the large plough, produced a much inferior crop to the other: the result was the same at each plantation. In putting in wheat on corn land with small ploughs, I have often laid them aside for the large plough on account of the heavy coats of grass on rich spots, old tobacco lots, &c. resuming the small plough again on passing them. The product and appearance of those spots of better land thus prepared were always inferior to that of inferior land ploughed with the small plough. I could add many instances of a similar kind with similar results.

From my observations, and experience, I deduce the following conclusion:

1. That to insure the best crop, lands, should be fallowed early, viz: before the middle of August.
2. That the surface acted upon by this process of a re-formation of soil, is the proper one into which the grain should be put.
3. That a second ploughing with a large plough in fallows, and its use in preparing corn land for wheat, is disadvantageous.—Nature, in both instances, has prepared a better surface than can be prepared by art.
4. That the mixing the newly formed soil, fully saturated with carbonic gas, with the inferior soil, prevents as quick and vigorous growth of wheat, and as early and as perfect maturity.

If the fallows have been ploughed early, and a crop of summer grass has grown upon them, they may be stirred with the small plough or coultur, if hard, or harrowed, if mellow, so as to pulverize and smooth the surface, without regarding the grass and the wheat sown among it. The first frost kills the grass, and it acts as beneficial covering to the wheat. [b] When the fallows are prepared, and the corn crop sufficiently forward to take off in September, the corn land may be ploughed with the small plough, and harrowed ready for seeding, and thus enable the farmer to put all his teams to the harrow, and sow a large crop in a few days. Selecting his own time for seeding, he may hope to expect the dangers of early and late fly, and do much to insure a fair crop from his land. In anticipation of this, it is desirable to plant a corn which will mature itself somewhat earlier than the kinds now cultivated. We have a corn in this neighborhood well adapted to this purpose, which yields well. If the corn is too late to commence removing in time to prepare your land in September, the balks can be broken before the corn is taken off. You will then, upon removing the corn in the latter end of the month, have only to plough the list and harrow the land, to be ready for seeding. If a proper seed bed is prepared, one harrowing is sufficient to cover the grain. [c] In the October of 1833, I had sown in this manner 300 acres in four days and a half, employing eight harrows with two horses each, and two with a yoke of oxen each; in all, ten harrows. The teams were never hurried until the last day for a few hours, when there was an appearance of rain. The same hands and teams were closely employed the next four days in putting in forty acres of rough corn land. This present month (October, 1835,) six days have been taken to put in three hundred and forty acres of land, eighty of which were rough with stone and stumps. The team employed the same.

When tobacco is cultivated as a mixed crop, the early corn ought to be planted.—It does not attain such size of stalk, and can be removed with less labor, severing it at the ground, and stacking it on the field

without pulling the fodder or cutting the tops. Enough hay should be made to serve the farm, and the time given to tobacco and other operations which is usually spent unprofitably about the fodder. I am satisfied that corn is less injured to be cut up, with the fodder and top on, than to take them off and leave it standing in the field. In the first place it cures; in the latter, it withers. I have heard a judicious farmer estimate, as fair work, 200 lbs. per day, the average of hands employed in gathering and securing fodder; of hay, 1000 lbs. The use of the revolving horse-rake on smooth land would much increase the latter average. I am aware, that in recommending the stacking of corn in the field, I am running counter to the opinions of some of our best farmers. I would not recommend it where the corn could be housed; but when it cannot be done, from attention to the tobacco crop, lateness of ripening, or deficiency of labor, I deem it better to lose the ground covered by stalks, than the greater loss from late seeding. The injury of running your teams and carts over the fields in dry weather after the wheat is sown and up, in removing the corn, I estimate very lightly.

NOTE [a]. That this process must be effected by the action of the gases, is proven from the uniform fertility of grave yards.—Here the bodies do not come in contact with the surface. It must be by the generated gas forcing its way through the fresh dry earth. Would a culture of several feet make poor land rich? I think not. Manures never sink. Upon light, sandy soils, with too small a portion of clay to imbibe and retain the gases, they penetrate easily, and escape rapidly; such require frequent applications of manure, but in smaller quantities—it acts promptly, but evaporates with the culture of a crop. Stiff clays, deficient in aperient particles, are not sufficiently permeable to the gas; the particles become compacted together by rains so as to expel it before it can be sufficiently imbibed.—They close so completely over the manures as to exclude the air, and arrest their decomposition. Upon such soils, manure ploughed under may be found, two or three years after, retaining its original appearance, but its fertilizing principle gone; for such, straw, half rotted manures that act as a temporary aperient, are best. Sand, or some substitute for it, is necessary for its mechanical effects as an aperient to every good soil. Its excess makes a quick soil soon exhausted; its deficiency, a stiff, slow soil. In addition, there are, no doubt, chemical combinations in all soils, rendering some capable of fertility, others not.—The sterility of any soil may be temporarily overcome by the application of animal or vegetable manures. But, *quære*: Will not an originally poor soil, if made ever so rich by manures, left to itself without cultivation, lapse into its original sterility? and will not one, originally fertile, when exhausted, become rich if left undisturbed long enough?

[b]. Blue grass fallows will probably require a second ploughing to destroy it.—The first ploughing on this grass should always be made before the grass seeds, as the plants are easily destroyed if disturbed about the time of their seeding. If fallowing is postponed until July or August, the crop becomes very precarious. It will most frequently happen, that after much time and labor has been spent, it will be injured or destroyed by the turf. If such lands cannot be ploughed in May, or early in June, this grass may be destroyed, or crippled, by hard grazing from spring until June or July

—it being a grass without aftermath, or ground leaf, each spire is a seed-bearing spire, and the grazing necessarily confined to these: and if it is not permitted to seed, it perishes. It is a grass never found upon commons, or on road sides, where it is perpetually grazed. It will probably be found, that grasses bear grazing in proportion to the quantity of ground leaf they put forth.

[c]. Some persons object to the harrow, as not covering the grain deep enough. If a grain of wheat is buried over 2 or 3 inches deep, it forms a joint near the surface from whence (if the plant is sown early, and the fall growth vigorous) it puts forth roots, and the spire and roots below that joint perish that fall, and the plant thrives by these surface roots.

Anderson recommends that Cows be milked three times a day in summer when full fed. If a Cow is not milked dry each time, the quantity diminishes; and if milked dry, the best milk is obtained. The first cream which rises is the best.

LARGE RHUBARB STALK.—A stalk of Rhubarb measuring thirteen feet six inches, may be seen at this office—from the House of Industry.—[New-England Farmer.]

The following article, from the New-York Express, may be of service to some of our readers. Every one who visits New-York should understand, and be governed by it, when using a Hack.

HACKNEY COACHMEN.

The difficulties constantly increasing between the Hackney coachmen of this city and our citizens, as well as strangers, together with their numerous and enormous impositions, make it our duty to let the public see what they ought to be paid. The coachmen forget that in the end they lose money by these impositions, for the dearer the fare is, the less the demand will be for coaches, and the greater the liability to imposition, the less inclined people will be to put themselves in a condition to be imposed upon. The fares now demanded are higher than in any city in England, where every thing is so dear, and far higher than in any city upon the continent: but the fares fixed by law, we copy below, as taken from the Corporation laws, and we advise our readers to cut out and lay by the article for the purpose of using it when occasion demands.

Five dollars are often demanded for taking strangers from one hotel to another, when the hotels are full, but the privilege of keeping the carriage *all day*, and of going to and returning from Kingsbridge, costs but five dollars. Passengers, under the Corporation laws, can go to Harlem and return, with the privilege of remaining three hours, for five dollars.

The price to 86th street, for one passenger, remaining one hour, and returning is two dollars, and for every additional passenger fifty cents.

The price for one passenger to 61st street, and remaining three quarters of an

hour and returning, \$1.50; every additional passenger, 37½ cents.

To Fortieth street, remaining half an hour and returning, \$1; every additional passenger 25 cents.

To the new Alms house and returning, 75 cents, and for every additional passenger and returning, 37½ cents.

To conveying a passenger any distance exceeding a mile, and within two miles, 50 cents; and for every additional passenger, 25 cents.

To conveying a passenger any distance not exceeding one mile, 25 cents; and for every additional passenger, 25 cents.

The Hackney coach for the hour with one or more passengers, with the privilege of going from place to place and of stopping,—costs for the first hour \$1, for the second hour 75 cents, and for every succeeding hour 50 cents.

The Hackney coachman has no legal right to demand or to receive any pay for the conveyance of a passenger, unless the number of the carriage and the rates of fare are fixed upon the carriage.

There is a penalty of \$10 for asking a larger price than the law entitles the coachman to. A penalty of \$10 is also inflicted upon the driver of a coach, when on any of the public stands, or whilst waiting for employment, when tendered his fare, if he refuses to carry any person or persons to any place or places on the island of New-York.

Every driver or owner of a Hackney coach or carriage, is under a legal obligation to carry upon his coach with his passenger one trunk, or other article used for travelling, without compensation therefor, and for every article more than one, he is entitled to 6 cents, for one mile, and if more, to 12½ cents.

NOTICE TO CONTRACTORS.

PROPOSALS for excavating and embanking the Georgia Railroad from the upper end of the work, now under contract, to Greensboro', a distance of 34 miles, will be received at the Engineer's Office, at Crawfordville, on the 21st and 22d days of October next.

—ALSO—

At the same time, for the Branch to Warrenton, 4 miles. And if prepared in season, the Branch to Athens, length 37 miles.

J. EDGAR THOMSON,
Civil Engineer.

NEW ARRANGEMENT.

NOTES FOR INCLINED PLANES OF RAILROADS. WE the subscribers having formed a co-partnership under the style and firm of Durfee, Coleman & Co., for the manufacturing and selling of Ropes for inclined planes of railroads, and for other uses, offer to supply ropes for inclined planes, of any length required without splice, at short notice, the manufacturing of cordage, heretofore carried on by S. S. Durfee & Co., will be done by the new firm. All orders will be promptly attended to, and ropes will be shipped to any port in the United States.

8th month, 8th, 1836. Hudson, Columbia County, State of New-York.

E. S. TOWNSEND, GEORGE COLEMAN,
ROBT. C. FOLGER, SYDNEY S. DURFEE.
33—4f.

MECHANICS WANTED.

AT Fort Schuyler, Throgs Point, Masons for laying large stone in a sea wall, Carpenters, a Millwright, and a steam Engineer and Machinist. Apply at Fort Schuyler, or at Governors Island. August 12th, 1836. 2t—33

NOTICE TO CONTRACTORS.

JAMES RIVER AND KANAWHA CANAL.

PROPOSALS will be received at the Office of the James River and Kanawha Company, in the City of Richmond, from the 15th to the 23rd day of August, for the construction of all the Excavation, Embankment and Walling now under contract, together with nearly all the Culverts and the greater portion of the Locks between Lynchburg and Maidens' Adventure.

The work now advertised embraces the twenty miles between Columbia and the head of Maidens' Adventure Pond, the eight miles between Seven Island Falls and Scottsville, and about twenty isolated sections, reserved at the former letting, between Scottsville and Lynchburg.

The quantity of masonry offered is very great—consisting of about two hundred Culverts of from three to thirty feet span; nine Aqueducts, thirty-five Locks a number of Wastes, with several farm and road Bridges.

General plans and specifications of all the work, and special plans of the most important Culverts and Aqueducts, will be found at the offices of the several Principal Assistant Engineers on the line of the Canal. The work will be prepared for examination by the 25th July; but mechanics, well recommended, desirous of immediate employment, can obtain contracts for the construction of a number of Culverts at private letting.

Persons offering to contract, who are unknown to the subscriber, or any of the Assistant Engineers, will be expected to accompany their proposals by the usual certificates of character and ability.

CHARLES ELLET, Jr.,
Chief Engineer of the James River
and Kanawha Company.

NOTE.—The Dams, Guard-Locks, most of the Bridges, and a number of Locks and Culverts, are reserved for a future letting. Persons visiting the line for the purpose of obtaining work, would do well to call at the office of the Company in the city of Richmond, where any information which they may desire will be cheerfully communicated.

The valley of James River, between Lynchburg and Richmond, is healthy. (20—1a18) C. E. Jr.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires, turned complete.

18 ROGERS, KETCHUM & GROSVENOR.

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleeker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J25tt

ALBANY EAGLE AIR FURNACE AND MACHINE SHOP.

WILLIAM V. MANY manufactures to order, IRON CASTINGS for Gearing Mills and Factories of every description.

ALSO—Steam Engines and Railroad Castings of every description.

The collection of Patterns for Machinery, is not equalled in the United States. 9—1y

NOTICE OF THE NEW-YORK AND ERIE RAILROAD COMPANY.

THE Company hereby withdraw their Advertisement of 26th April, in consequence of their inability to prepare in time, the portions of the line proposed to be let on the 30th June, at Binghamton, and on the 11th of July at Monticello. Future notice shall be given, when proposals will be received at the above places, for the same portions of the road.

JAMES G. KING, President.
21—1f

ARCHIMEDES WORKS.

131 N. 100 North Moor street, N. Y.

New-York, February 12th, 1836.

THE undersigned begs leave to inform the proprietors of Railroads that they are prepared to furnish all kinds of Machinery for Railroads, Locomotive Engines of any size, Car Wheels, such as are now in successful operation on the Camden and Amboy Railroad, none of which have failed—Castings of all kinds, Wheels, Axles, and Boxes, furnished at shortest notice.

H. R. DUNHAM & CO.

4—yt

FRAME BRIDGES.

THE subscriber would respectfully inform the public, and particularly Railroad and Bridge Corporations that he will build Frame Bridges, or vend the right to others to build, on Col. Long's Patent, throughout the United States, with few exceptions. The following sub-Agents have been engaged by the undersigned who will also attend to this business, viz.

Hornee Childs,	Henniker, N. H.
Alexander McArthur,	Mount Morris, N. Y.
John Mahan,	do do
Thomas H. Cushing,	Dover, N. H.
Ira Blake,	Wakefield, N. H.
Amos Whitmore, Esq.,	Hancock, N. H.
Samuel Herrick,	Springfield, Vermont.
Simeon Herrick,	do do
Capt. Isaac Damon,	Northampton, Mass.
Lyman Kingsly,	do do
Eljah Halbert,	Waterloo, N. Y.
Joseph Hebard,	Dunkirk, N. Y.
Cot. Sherman Peck,	Hudson, Ohio.
Andrew E. Turnbull,	Lower Sandusky, Ohio.
William J. Turnbull,	do do
Sabried Dodge, Esq.,	(Civil Engineer,) Ohio.
Booz M. Atherton, Esq.,	New-Philadelphia, Ohio.
Stephen Daniels,	Marietta, Ohio.
John Rodgers,	Louisville, Kentucky.
John Tillison,	St. Francisville, Louis'a.
Capt. John Bottom,	Tonawanda, Penn.
Nehemiah Osborn,	Rochester, N. Y.

Bridges on the above plan are to be seen at the following localities, viz. On the main road leading from Baltimore to Washington, two miles from the former place. Across the Metawankag river on the Military road, in Maine. On the National road in Illinois, at sundry points. On the Baltimore and Susquehanna Railroad at three points. On the Hudson and Patterson Railroad, in two places. On the Boston and Worcester Railroad, at several points. On the Boston and Providence Railroad, at sundry points. Across the Contoocook river at Hancock, N. H. Across the Connecticut river at Haverhill, N. H. Across the Contoocook river, at Henniker, N. H. Across the Souhegan river, at Milford, N. H. Across the Kennebec river, at Waterville, in the state of Maine. Across the Genesee river, at Mount Morris, New-York, and several other bridges are now in progress. The undersigned has removed to Rochester, Monroe county, New-York, where he will promptly attend to orders in this line of business to any practicable extent in the United States, Maryland excepted.

MOSES LONG.

General Agent of Col. S. H. Long.
Rochester, May 22d, 1836. 19y-1f.

PATENT RAILROAD, SHIP AND BOAT SPIKES.

THE Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation, and now almost universal use in the United States, (as well as England, where the subscriber obtained a patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersunk heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y., July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes. (1J23am) H. BURDEN.

AMES' CELEBRATED SHOVELS, SPADES, &c.

300 dozens Ames' superior back-strap Shovels
150 do do do plain do
150 do do do cast-steel Shovels & Spades
150 do do Gold-mining Shovels
100 do do plated Spades
50 do do socket Shovels and Spades.

Together with Pick Axes, Churn Drills, and Crow Bars (steel pointed), manufactured from Salisbury refined iron—for sale by the manufacturing agents,

WITHERELL, AMES & CO.

No. 2 Liberty street, New-York.

BACKUS, AMES & CO.

No. 8 State street, Albany

N. B.—Also furnished to order, Shapes of every description, made from Salisbury refined Iron. 4—yt

RAILWAY IRON, LOCOMOTIVES, &

THE subscribers offer the following articles for sale.

Railway Iron, flat bars, with countersunk holes and mitted joints.

350 tons 24 by 4, 15 ft in length, weighing 4 lbs. per ft.	lb.
280 " 2 " " " " " " " " " " "	3 5/8 "
70 " 1 1/2 " " " " " " " " " "	2 1/2 "
80 " 1 1/2 " " " " " " " " " "	1 5/8 "
90 " 1 1/2 " " " " " " " " " "	1 1/2 "

with Spikes and Splicing Plates adapted thereto. To be sold, free of duty to State governments or incorporated companies.

Orders for Pennsylvania Boiler Iron executed.

Rail Road Car and Locomotive Engine Tires, wrought and turned or unturned, ready to be fitted on the wheels, viz. 30, 33, 36, 42, 44, 54, and 60 inches diameter.

E. V. Patent Chain Cable Bolts for Railway Car axles, in lengths of 19 feet 6 inches, to 13 feet 24, 21, 3, 34, 34, 34, and 34 inches diameter.

Chains for Inclined Planes, short and stay links, manufactured from the E. V. Cable Bolts, and proved at the greatest strain.

India Rubber Rope for Inclined Planes, made from New Zealand flax.

Also Patent Hemp Cordage for Inclined Planes, and Canal Towing Lines.

Patent Felt for placing between the iron chair and stone block of Edge Railways.

Every description of Railway Iron, as well as Locomotive Engines, imported at the shortest notice, by the agency of one of our partners, who resides in England for this purpose.

Mr. Solomon W. Roberts, a highly respectable American Engineer, resides in England for the purpose of inspecting all Locomotives, Machinery, Railway Iron &c. ordered through us.

A. & G. RALSTON.

28-1f Philadelphia, No. 4, South Front st.

OFFICE PONTCHARTRAIN, RAILROAD CO.
New Orleans, 19th May, 1836.

THE Board of Directors of this Company, will pay the sum of five hundred dollars to the inventor or projector, of a machine or plan to prevent the escape of sparks from the Chimney of Locomotive Engines, burning wood, and which shall be finally adopted for use of the Company. No further charge to be made for the right of the Company to use the same.

By order of the Board,

JNO. B. LEEFE, Secretary.

28—3m.

THE NEWCASTLE MANUFACTURING COMPANY, incorporated by the State of Delaware, with a capital of 200,000 dollars, are prepared to execute in the first style and on liberal terms, at their extensive Finishing Shops and Foundries for Brass and Iron, situated in the town of Newcastle, Delaware, all orders for LOCOMOTIVE and other Steam Engines, and for CASTINGS of every description in Brass or Iron. RAILROAD WORK of all kinds finished in the best manner, and at the shortest notice.

Orders to be addressed to

Mr. EDWARD A. G. YOUNG,

Feb 20—ytf Superintendent, Newcastle, Del

TO CANAL CONTRACTORS.

Office of the Sandy and Beaver Canal Co.,
July 25th, 1836.

Proposals will be received at the office of the Sandy and Beaver canal company, in New Lisbon, Columbiana county, Ohio, until Monday the 10th day of October next, for the construction of about 50 cut stone locks, 17 dams, (varying from 5 to 20 feet in height) one aqueduct across the Tuscarawas River, several bridges, and about 10 or 15 miles of canal.

Plans and specifications of the work may be examined at the Engineers office, New Lisbon.

Persons unknown to the Engineer must accompany their proposals with good recommendations.

B. HANNA, President.

E. H. GILL, Chief Engineer. 30—to10

TO CONTRACTORS.

Sealed proposals will be received at Jackson, until the 15th day of September next, for the graduation, masonry and bridging of the 3d division (50 miles) of the Mississippi Railroad.

This road is located on a pine sandy ridge, the country is healthy, and provisions can be readily obtained at all seasons of the year.

The whole line (150 miles) will be placed under contract, as the location advances next fall; and it is believed that no institution can offer greater inducements to good Contractors than this.

P. H. PETRIE, Chief Eng.

ENGINEERS OFFICE,
Natches, June 10, 1836.

28—till Sep. 5.